N.S.W. DEPARTMENT OF AGRICULTURE.

BIOLOGICAL BRANCH - DIVISION OF SCIENCE SERVICES.

P L A N T D I S E A S E S U R V E Y

for the

TWELVE MONTHS ENDING 30TH JUNE, 1952

TWENTYSECOND ANNUAL REPORT

Notes compiled by officers of the Plant Pathological Section of the Biological Branch, New South Wales Department of Agriculture, Sydney, Australia.

---oOo---

COMMONWEALTH MYCOLOGICAL INSTITUTE
11 FEB 1953

N.S.W. DEPARTMENT OF AGRICULTURE.

BIOLOGICAL BRANCH - DIVISION OF SCIENCE SERVICES.

P L A N T D I S E A S E S U R V E Y

for the

TWELVE MONTHS ENDING 30TH JUNE, 1952

TWENTYSECOND ANNUAL REPORT

Notes compiled by officers of the Plant Pathological Section of the Biological Branch, New South Wales Department of Agriculture, Sydney, Australia.

---oOo---

N.S.W. DEPARTMENT OF AGRICULTURE

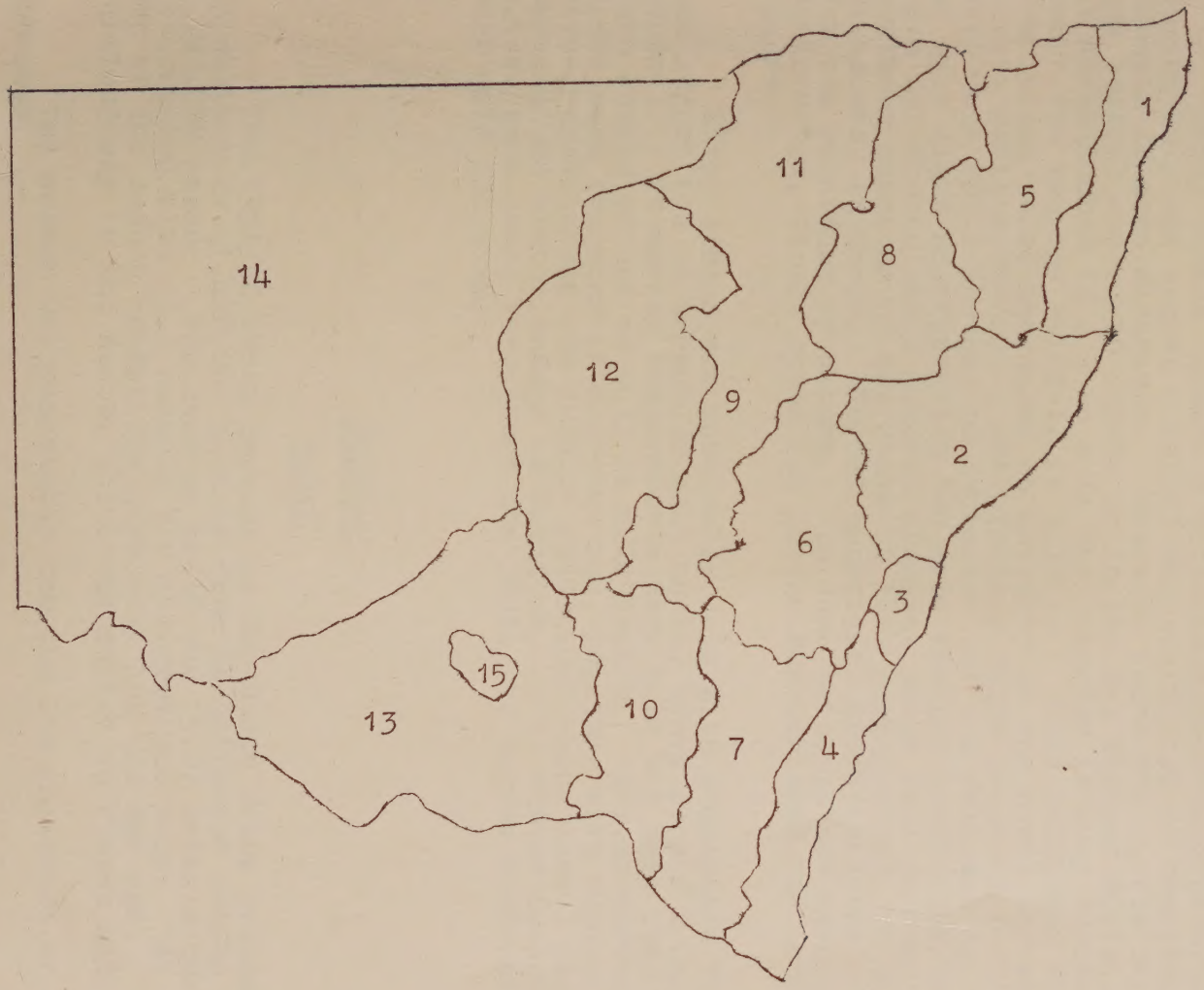
Biological Branch Staff.

C.J. Magee, D.Sc.Agr., M.Sc.	..	Chief Biologist
W.S. Sutton, B.Sc.Agr., A.A.C.I.	..	Senior Biologist
Lilian Fraser, D.Sc.	..	Plant Pathologist
T.B. Kiely, D.Sc.Agr.	..	Plant Pathologist
J.R. Morschel, B.Sc.Agr.	..	Plant Pathologist
F.C. Butler, Ph.D.	..	Plant Pathologist
K.E. Hutton, B.Sc.Agr.	..	Plant Pathologist
R.J. Conroy, B.Sc.Agr.	..	Plant Pathologist
P.G. Valder, B.Sc.Agr.	..	Asst. Plant Pathologist
J. Walker, B.Sc.Agr.	..	Asst. Plant Pathologist
H.H. Randell	..	Bacteriologist
D. Corbett, B.Sc.Agr.	..	Asst. Bacteriologist
K. Baumgartner, B.Sc.Agr.	..	Asst. Bacteriologist

ACKNOWLEDGMENTS: Grateful acknowledgment is made of the data provided by the Colonial Sugar Refining Company Ltd. in respect of diseases of sugar cane; also information made available by the Specialist and Field Officers of the Divisions of Horticulture and Plant Industry of the Department of Agriculture, by members of the Faculty of Agriculture, University of Sydney, and by Plant Pathologists of the Commonwealth Scientific and Industrial Research Organisation.

C O N T E N T S.

	PAGE.
CEREALS AND GRASSES	
Wheat	1
Oats	3
Barley	4
Rye	4
Millets	4
Sorghum	4
Maize	4
Rice	5
Sugar Cane	5
Sweet Corn	6
Miscellaneous Grasses	7
FIELD AND FODDER CROPS (Alphabetically by common name)	9
FRUIT	
Cane Fruits	12
Citrus Fruits	13
Pome Fruits	17
Stone Fruits	19
Tropical Fruits	22
Miscellaneous Fruits	23
ORNAMENTALS (Alphabetically by common name)	25
VEGETABLES (Alphabetically by common name)	31
MISCELLANEOUS PLANTS (Alphabetically by common name)	46
WEATHER	1



DISTRICTS OF NEW SOUTH WALES.

KEY.

1. North Coast (N.C.)
2. Central Coast (C.C.)
3. Metropolitan Area (M.A.)
4. South Coast (S.C.)
5. Northern Tableland (N.T.)
6. Central Tableland (C.T.)
7. Southern Tableland (S.T.)
8. North Western Slope (N.W.S.)
9. Central Western Slope (C.W.S.)
10. South Western Slope (S.W.S.)
11. North Western Plain (N.W.P.)
12. Central Western Plain (C.W.P.)
13. Riverina (R.)
14. Western Division (W.D.)
15. Murrumbidgee Irrigation Areas (M.I.A.)

DEPARTMENT OF AGRICULTURE

NEW SOUTH WALES.

BIOLOGICAL BRANCH - DIVISION OF SCIENCE SERVICES.

PLANT DISEASE SURVEY - 1951/52.

TWENTYSECOND ANNUAL REPORT.

WEATHER CONDITIONS.

Weather conditions during the year ended 30th June, 1952 were more nearly the average for the State than were those of immediately preceding seasons which had been characterised by excessive rainfall.

Early winter commenced with widespread precipitation but during July and August rainfall was restricted to beneficial amounts in most districts. However, there was little rain on the central and north coasts or in the far western districts. At Murwillumbah (N.C.) no rain was recorded in July during which month the average rainfall is 3.73 in. This initiated drought conditions which increased in severity on the north and central coasts until February. Satisfactory falls occurred in other districts until the end of September but was followed by a period of very light precipitation and mild drought conditions which were not broken until general abundant rains fell on coastal and northern sections of the State in late February and, in other districts, in March. Normal beneficial precipitations continued for the remainder of autumn. In June rainfall was irregularly distributed, floods occurring in the Murrumbidgee and Lachlan rivers.

Early winter was seasonably cold with widespread frosts but August was an unusually cold month, heavy frosts being general. In spring temperatures were mild but were interspersed with bursts of hot as well as cold spells. Strong westerly winds were frequent in November and, together with recurring heat waves, accentuated the drought conditions which caused serious pasture and timber damage by bushfire. The summer season was hotter than usual throughout the State but autumn temperatures were mild and warm.

CEREALS

WHEAT

The 1951/52 wheat harvest in New South Wales yielded approximately 41,400,000 bushels from an estimated sowing of 2,748,000 acres. The average yield was 15.07 bushels per acre as compared with 13.1 bushels for the previous year. At the end of the season conditions were very hot and dry and, particularly in the south, the crops failed to finish well.

The season was remarkable for the low incidence of most diseases.

FROST INJURY occurred throughout the State, mainly in isolated crops, but was worst in northern areas where there were some severe cases, the flags and some tillers being killed. Stem and head frosting was rare.

In the south damage was negligible except in the Young (S.W.S.) district where some 6-10% of crops were affected, a few near Boorowa (S.W.S.) being completely destroyed.

LEAF SPOT OR WINTER BLIGHT (Septoria tritici) was widespread and, during the winter, quite severe in southern districts. Later in the season it was of little importance, although it was observed discolouring the glumes and stems in certain instances at Cowra (C.W.S.), Wagga and Temora (S.W.S.).

GLUME BLOTCH (Septoria nodorum) occurred throughout the wheat belt but was inconspicuous and unimportant. The disease manifested itself largely as a leaf spot although glume infections were observed from time to time. However, the dry weather prevented the disease developing to any appreciable extent.

STEM RUST (Puccinia graminis tritici) was only observed in trace amounts this season and the damage caused was negligible. Throughout the spring conditions were most unfavourable for rust development. Very few wet days were recorded and hot winds further reduced available moisture.

LEAF RUST (Puccinia triticina) infection, although quite common, was very light and caused negligible damage.

FLAG SMUT (Urocystis tritici) did very little damage to wheat crops in 1951. Throughout the State only four crops were observed to be severely infected, three of these being in the north west and one in the Young (S.W.S.) district. In each case the variety was Gabo. Apart from these relatively severe infections the disease was observed on odd plants in other parts of the State.

BUNT (Tilletia caries and T. foetida) appears to have been more prevalent in 1951 than it has been for some years. According to reports received by the Manager of the Grain Elevators Branch, the heaviest infections were on the Griffith-Hillston (R.) and Wyalong (S.W.S.)- Lake Cargellico (C.W.P.) lines. These observations are borne out by reports from district agronomists. In the West Wyalong (S.W.S.) area crops carrying 5-10% of bunt were observed near Giddal. In crop competitions at Wyalong (S.W.S.), Lake Cargellico (C.W.P.), Ungarie (C.W.P.) and Tillibigeal (S.W.S.) 20% of entries were found to be infected heavily enough to affect their market quality. There were only isolated records in the other districts.

LOOSE SMUT (Ustilago tritici) was, as usual, widespread but of little importance.

TAKE ALL (Ophiobolus graminis). Small patches were observed occasionally throughout the wheat belt but the disease caused little damage.

FOOT ROT (Helminthosporium sativum) was recorded from many districts, but cases of severe damage, which were directly attributable to this disease, were not found. Plants which had hayed off were thought, in many cases, to have been affected by the hot dry weather rather than by foot rotting organisms.

LEAF SPOT (Helminthosporium tritici-repentis) was present in trace amounts in the north west but was of no importance. Early in the season seedlings showed numerous infections and, if weather conditions had favoured it, the disease would probably have been quite severe.

GRAIN DISCOLOURATIONS (Helminthosporium and Alternaria spp. associated) were not observed.

DOWNY MILDEW (Sclerospora macrospora) was not recorded.

BASAL GLUME ROT (Pseudomonas atrofaciens). No record.

BLACK CHAFF (Xanthomonas translucens var. undulosa). No. record.

HEAD BLIGHT (Fusarium sp.). No record.

POWDERY MILDEW (Erysiphe graminis tritici) was observed in plots on the central coast.

MELANISM (Non parasitic) was recorded, although it was not as obvious as in the previous season.

LEAF SPECKLE (Unidentified) was again observed, being particularly well developed in certain varieties in southern districts. In some varieties the condition could better be described as a striping.

WEATHER DAMAGE. Hail is estimated to have caused a loss of 750,000 bushels.

OATS.

STEM RUST (Puccinia graminis avenae) was present but there were no records of severe infection.

FROST INJURY. Flag frosting was recorded from Condobolin (C.W.P.) and Glen Innes (N.T.). Cold injury resulting in a reddening and curling of the leaves was recorded from Taree (C.C.) and several other localities.

CROWN RUST (Puccinia coronata). Severe infections were observed as usual in coastal districts, and also at Temora (S.W.S.)

SMUT (Ustilago avenae and U. Kolleri) occurred in all oat growing districts, usually only in trace amounts. However, a crop of Fulghum was observed at Rocky Dam (N.W.S.) in which almost 100% of the plants were infected. The first heads to emerge were all smutted but the later ones were quite normal and the crop which earlier appeared to be a total failure looked quite well at the time it was inspected.

SPECKLED BLOTCH (Septoria avenae) was recorded from Wagga (S.W.S.) but infection was mild.

LEAF SPOT (Helminthosporium avenae) was found in all crops examined but was of no importance.

ANTHRACNOSE (Colletotrichum graminicolum). No record.

HALO BLIGHT (Pseudomonas coronafaciens). No record.

BACTERIAL STRIPE (Pseudomonas striafaciens). No record.

GREY SPECK (Manganese deficiency). No record.

SCORCH (undetermined) was recorded from Tamworth (N.W.S.)

BARLEY.

SCALD (Rhyncosporium secalis) was observed at Glen Innes, (N.T.) Districts, Wagga (S.W.S.) Districts, and Temora (S.W.S.) Districts.

POWDERY MILDEW (Erysiphe gramminis hordei) occurred on the central coast.

NET BLOTCH (Pyrenophora teres). No record.

COVERED SMUT (Ustilago hordei) was recorded from Rocky Dam (N.W.S.).

RYE.

No records.

BROOM MILLET

RED STAIN (undetermined) occurred as usual.

GRAIN SORGHUM.

RED STAIN (undetermined) was prevalent as usual, but no particular organism could be identified as a causal agent.

DWARFING (? virus) was recorded at Wakool.(R). The crop was heavily infested with Aphis maidis which is known to be a vector of viruses affecting sorghum.

MAIZE.

The harvest this season was small as a result, largely, of the very severe drought on the north coast. In many cases crops were either not sown or in the absence of other fodder, fed off to stock.

ROOT AND BASAL STALK ROT (Gibberella moniliformis, G. saubinetii and G. fujikuroi var. subglutinans) were observed only in very small amounts. Now that hybrids which have been selected for resistance are very widely grown these troubles are much less in evidence than some years ago.

COB AND GRAIN ROTS (Gibberella moniliformis, G. saubinetii and G. fujikuroi var. subglutinans) occurred in varying degrees. The autumn was cool and damp and these troubles were quite often observed, particularly following earworm injury.

ar

LEAF BLIGHT (Helminthosporium turcicum) was present only in trace amounts.

DRY ROT (Diplodia zeae). Occasional infections were observed.

HEAD SMUT (Sphacelotheca reiliana). A low infection was recorded in a crop at Nowra (S.C.) and a moderate infection at Kangaroo Valley (S.C.). In two crops, one Standfast and one Victory hybrid, at Wauchope (C.C.) infection was unusually severe, the Standfast showing 33% of smutted ears and the Victory 50%. In one patch of the Victory where germination was delayed by lack of moisture, 65% of the ears were smutted. It was observed that every plant that had a smutted tassel had a smutted ear, whereas many plants with smutted ears had no smut on the tassels. It seems that, as in the case of many other smuts, the mycelium does not always invade the whole of the plant. It seems probable, in the case of the Wauchope crops, that the high infection was brought about by abnormally high temperatures at the time of germination. The crops were sown in the middle of November.

It is presumed that in most maize areas soil temperatures at the time of sowing are sufficiently low to ensure a very low infection.

COB DROP (Non-parasitic) was observed in one hybrid at the New England Experiment Farm, Glen Innes (N.T.). This appeared to be due to its possession of shanks abnormally thin for the size of the cob, a weakness that is not obvious in the inbred parents.

LEAF BLIGHT (Non-parasitic). One inbred strain at Grafton (N.C.) Experiment Farm showed pale blotches and streaks on its leaves. In many cases most of the leaf tissue was necrosed. As the other inbred lines were apparently normal it is thought that this must be an inherent defect brought to light by inbreeding.

RICE.

BROWN GLUME STAIN (non-parasitic) was as usual widespread in the M.I.A., but of no importance. Brownish discolorations were observed occasionally on the maturing leaves of Caloro II, particularly the upper ones. Similar discolorations were observed to be very prevalent on the Lady Wright hybrids at Yanco Experiment Farm (M.I.A.). These marks are thought to be non-parasitic and characteristic of certain varieties and hybrids.

A brief survey carried out in April, 1952 of the introduction area and increase blocks at Yanco Experiment Farm (M.I.A.) and of several commercial crops in the Leeton (M.I.A.) area revealed the presence of no parasitic diseases.

SUGAR CANE.

Information supplied by the Colonial Sugar Refining Co. Ltd. shows that, during the 1951/52 season 321,388 tons of sugar cane were crushed.

It is estimated that 188 tons were lost through diseases. This represents 0.05% of the total tonnage crushed.

FIJI DISEASE (Virus) was again the most important disease, causing an estimated loss of 176 tons. This is little more than half the loss caused in the previous season.

RED STRIPE (Xanthomonas rubrilineans). The loss from this disease was estimated to be 5 tons.

MOSAIC (Virus) is reported to be responsible for a loss of 7 tons of cane. In the Tweed district it has become increasingly evident in the valuable seedling variety 41S.N.3339. Some disease has also been found in Trojan.

RED ROT (Physalospora tucamanensis) caused some damage but losses were not estimated.

PINEAPPLE DISEASE (Ceratostomella paradoxa) was reported to have caused some damage.

LEAF SCALD (Bacterium albilineans). Small outbreaks of this disease have been observed in the Clarence River (N.C.) district.

CHLOROTIC STREAK (Virus) has attained greater importance now that Trojan is a major variety and care should be taken to select healthy seed.

EYESPOT DISEASE (Helminthosporium sacchari) has been observed in the Clarence (N.C) district. The disease affects the leaves during the winter months and some cases of severe infection have occurred in crops of Atlas grown on rich sandy soils.

GUMMING (Xanthomonas vasculorum). No record.

SWEET CORN

Diseases in this crop were as usual of little importance. Being harvested as it is at a comparatively early stage of its development it is not subject to many of the troubles affecting maize.

ROOT AND BASAL STALK ROT (Gibberella moniliformis, G. saubinetis and G. fujikuroi var. subglutinans) was not recorded.

COB AND GRAIN ROTS (Gibberella spp. and other fungi) occurred only in crops grown for seed in the Murrumbidgee Irrigation Areas and at Mudgee (C.T.), and in cobs past maturity.

LEAF BLIGHT (Helminthosporium turcicum). No record.

RUST (Puccinia sorghi) was observed in trace amounts. The inbreds are reported to differ in susceptibility to this disease.

MISCELLANEOUS GRASSES

BARLEY GRASS (Hordeum leporinum)

LEAF SPOT (Helminthosporium sp.) developed again throughout the State and caused a certain amount of haying off.

STEM RUST (Puccinia graminis). No record.

BUNT (Tilletia hordei) was not recorded but quite probably occurred as usual.

LEAF SPOT (Septoria passerinii) was recorded from Wagga and Temora (S.W.S.)

SCORCH (Rhyncosporium secalis) was observed at Wagga (S.W.S.)

BARNYARD GRASS (Echinochloa crus-galli)

SMUT (Ustilago crus-galli) was general in the Murrumbidgee Irrigation Areas.

BENT GRASSES (Agrostis spp.)

BROWN PATCH (Rhizoctonia solani, Helminthosporium spp., Curvularia sp.) was recorded in lawns and sports greens in the Metropolitan Area and at Leeton (M.I.A.).

DOLLAR SPOT (Sclerotinia homoeocarpa). No record.

BLACK SCUM (algal) caused trouble in greens in the Metropolitan Area and at Leeton (M.I.A.).

BUFFALO GRASS (Stenotaphrum secundatum)

LEAF SPOT (Piricularia sp.) was observed in the Metropolitan Area.

CANARY GRASS, LESSER (Phalaris minor)

POWDERY MILDEW (Erysiphe graminis) was recorded from Leeton (M.I.A.). It was first recorded in 1947 but is believed to have been present for many years.

COUCH GRASS (Cynodon dactylon)

BROWN PATCH (Rhizoctonia solani, Curvularia and Helminthosporium spp.) was frequently observed in the Metropolitan Area. There was a case recorded from Glenbrook (C.T.) where a Helminthosporium sp. was damaging a lawn by killing the leaves and shoots rather than the basal parts of the plants.

DOLLAR SPOT (Sclerotinia homoeocarpa). No record.

RUST (Puccinia cynodontis) was noted in the Metropolitan Area.

SMUT (Ustilago cynodontis) occurred as usual.

COUCH, PRICKLY (Zoisia macrantha)

LEAF SPOT (Phyllachora sp.) was recorded from Terrigal (C.C.).

CROWS FOOT GRASS (Eleusine indica)

BLIGHT (Helminthosporium sp.) was reported from the central coast.

KANGAROO GRASS (Themeda australis)

LEAF SPOT (Phyllachora sp.) was recorded at Whale Beach (M.A.)

KIKUYU (Pennisetum clandestinum)

LEAF SPOT (Piricularia sp.) occurred on the Central Coast.

BLIGHT (Helminthosporium sp.) was reported from Grafton (N.C.)

FOOT ROT (Helminthosporium sativum and Curvularia sp.) was recorded from Yenda (M.I.A.)

PARRAMATTA GRASS (Sporobolus capensis)

SOOTY HEAD (Helminthosporium ravenelii) was very common.

PARRAMATTA GRASS, SLENDER (S.elongatus)

SOOTY HEAD (Helminthosporium ravenelii) was recorded.

PASPALUM (Paspalum dilatatum)

ERGOT (Claviceps paspali) was common as usual in coastal and tablelands districts.

PRAIRIE GRASS (Bromus unioloides)

SMUT (Ustilago bromivora) was recorded from many parts of the state.

ANTHRACNOSE (Colletotrichum graminicolum) was much less in evidence than during the two previous seasons.

QUAKING GRASS (Briza maxima)

LEAF SPOT (Helminthosporium sp.) occurred widely in the Metropolitan Area.

RED LEG (Bothriochloa ambigua)

SMUT (Sphacelotheca amphilophis) was recorded from Murrurundi (N.W.S.)

RYE GRASS, PERENNIAL (Lolium perenne)

LEAF RUST (Puccinia coronata) was common in coastal and tablelands districts.

RYE GRASS, WIMMERA (Lolium rigidum)

No record.

SPEAR GRASS (Stipa scabra)

STEM SMUT (Ustilago hypodytes) was recorded from Captains Flat (S.T.)

SUMMER GRASSES (Digitaria adscendens and D. sanguinalis)

BLAST (Piricularia grisea) was recorded from various localities.

RUST (Uredo sp.) was recorded in the Metropolitan Area.

WILD OATS (Avena fatua)

STEM RUST (Puccinia graminis avenae). Isolated records of mild infections.

CROWN RUST (Puccinia coronata) occurred extensively on the coast.

SPECKLED BLOTCH (Septoria avenae). No record.

YORKSHIRE FOG (Holcus lanatus)

STRIPE SMUT (Ustilago striiformis) was recorded from Oberon (C.T.)

FIELD AND FODDER CROPS

CASTOR BEAN

LEAF SPOT (Alternaria sp.) was present at Yanco (M.I.A.).

CLOVERS

RUST (Uromyces spp.) was reported on subterranean clover (Trifolium subterraneum), red clover T. pratense), white clover (T. repens) and clustered clover (T. glomeratum).

Rust of white clover in its aecial stage was very severe on the coast in the spring, the petioles and stems being attacked and the leaves therefore withering.

Rust of subterranean clover was also severe in many districts.

COWPEAS

No record.

FIELD PEAS

No record.

LINSEED

PASMO (Sphaerella linorum) was recorded in all districts but was unimportant in most cases as, owing to the dry season, it usually only developed on the lowest leaves. In the M.I.A. however, it was observed attacking crops throughout the district.

CROWN ROT and LODGING (unidentified). This condition which occurred so widely under the abnormally wet conditions of last year was not observed. There was some browning of the stem bases but this was thought to be natural.

CLUB HEAD (Zinc deficiency) occurred throughout the north west and did not appear to be confined to any particular type of soil. In some crops it occurred in patches, on some near trees and in others uniformly. Also the early sown crops were often less affected than those sown late. It seems, then that the condition is aggravated by lack of water and it may be that under dry conditions the linseed plants cannot extract sufficient zinc from soils on which, in moister seasons they develop normally.

WITHER TOP (Calcium deficiency). A condition agreeing with the wither top as described in literature was observed in the spring in a crop in the M.I.A. It was estimated that about 5% of plants were affected and it is thought that the calcium deficiency may have been induced by waterlogging after rain in September.

LUCERNE

LEAF SPOT (Pseudopeziza medicaginis). Moderate infections occurred throughout all lucerne growing districts. Although, in general, it did little damage there were isolated instances of heavy infection.

YELLOW LEAF SPOT (Pyrenopeziza medicaginis) was recorded from Narrabri (N.W.P.) where, in association with Pseudopeziza, it was causing some damage in the autumn.

BLACK STEM (Ascochyta imperfecta) was observed at Wagga and Temora (S.W.S.) apparently causing little injury.

RUST (Uromyces striatus) was observed in several districts. A severe infection was recorded from North Star (N.W.S.).

DOWNY MILDEW (Peronospora trifoliorum) was general in the spring in the M.I.A.

CROWN ROT (Rhizoctonia solani) was recorded from Taree (C.C.), Gunnedah (N.S.W.), and the Metropolitan Area. Dead crowns from a crop which had completely died out at Rylstone (C.T.) were colonised by Sclerotium bataticolum. However, it is thought that this fungus was a secondary invader in this case and that the plants died from the combined effects of drought and overgrazing.

CROWN WART (Urophlyctis alfalfae) was observed on occasional plants at Temora (S.W.S.)

STEM NEMATODE (Anguillulina dipsaci) caused considerable damage in a stand at Aberdeen (C.C.).

WITCH'S BROOM (Virus) was observed at Wagga and Temora (S.W.S.) and no doubt is widespread. However, owing to the fact that the symptoms are expressed only at certain times of the year and under certain conditions the extent of infection is not accurately known. A greening and proliferation of the flower heads was observed at Coolah (C.T.) and considered to be caused by the same virus.

OTHER CONDITIONS. A marginal scorching of the leaves of isolated plants was observed in several localities. No pathogenic organisms were found to be associated and it is thought that this condition may be an inherent weakness of such plants. Other plants have been observed to assume red and yellow tints suggestive of boron deficiency. This condition was observed at Muswellbrook (C.C.) and Wagga (S.W.S.) but the cause is not known.

MEDICS

LEAF SPOT (Pseudopeziza medicaginis) was recorded as usual, from most parts of the state on Medicago denticulata but, owing to the dry conditions was not severe.

PEANUT

CROWN ROT (Sclerotium rolfsii) was recorded for the first time in this state from the north coast.

LEAF SPOT (Cercospora personata) was present in the same district but the infection was mild.

POD SPOT (undetermined) was observed at Lismore (N.C.)

SUNFLOWER

WILT and STALK ROT (Sclerotinia minor) was recorded again at Yanco Experiment Farm (M.I.A.). It is present there in one area only.

BIG BUD (Virus) was recorded at Yanco (M.I.A.).

TOBACCO

DOWNY MILDEW (Peronospora tabacina). No record.

BACTERIAL WILT (Bacterium solanacearum). No record.

BLACK SHANK (Phytophthora parasitica). Plants were received from the Tenterfield (N.T.) district showing typical black shank symptoms. The fungus isolated readily attacked castor bean plants in the glasshouse but was only weakly parasitic on tobacco. Hence until tests are made with other varieties of tobacco it is not known whether this strain of Phytophthora parasitica is the same as that recorded causing black shank of tobacco overseas. The disease has been recorded in Queensland but so far apparently has not been serious.

LEAF SPOTS (undetermined). Several leaf spots have been observed on tobacco in N.S.W. At Yanco (M.I.A.) a species of Alternaria was associated with the spotting but its pathogenicity was not proved. Likewise, with specimens from Tenterfield (N.T.) a bacterium was found in abundance in concentrically zoned spots. However, this bacterium could not be induced to cause infections under glasshouse conditions.

Pale scabby lesions were quite abundant on the lower leaves of specimens from Tenterfield (N.T.). No organisms were found associated and it is thought that they were the result of damage caused by wind-borne sand grains and other particles.

ROOT KNOT (Heterodera marioni) was widespread in the Tenterfield (N.T.) district and is a serious problem in some areas.

MOSAIC (Virus) was observed to be present in all but one of the plants in an experimental plot at Yanco Experiment Farm (M.I.A.).

CANE FRUITS

BLACK CURRANT

No record.

RED CURRANT

LEAF SPOT (Mycosphaerella ribis) was noted from Mt. Wilson (C.T.) causing only minor injury.

BOYSENBERRY, YOUNGBERRY, LOGANBERRY

ANTHRACNOSE (Elsinoe veneta). Only light infection occurred in coast and tableland districts. Weather conditions were warm and very dry over almost the whole of the growing period.

RASPBERRY

LEAF SPOT (Septoria sp.). Light infection occurred in a Mt. Wilson (C.T.) crop.

CITRUS FRUITS

ROOT, COLLAR and FRUIT ROT (Phytophthora citrophthora). Weather conditions in coastal citrus areas were wet and cool during winter 1951, and continued so until early spring. Subsequently little rain fell until the autumn and high temperatures were experienced throughout late spring and summer. During late winter cases of collar rot were recorded from most coastal districts. The disease was particularly active in mature Emperor mandarins, in the Wiseman's Ferry and Colo (M.A.) area. Many cases of multiple infection were noted and many hundreds of trees were killed. Minor infections of collar rot dried up during the subsequent dry weather.

Under stress of drought conditions and hot winds in late spring trees which had suffered root loss during the previous autumn and winter declined rapidly. As a result, except in healthy orchards where irrigation was practiced, there was almost no fruit set and considerable leaf fall occurred. In the Gosford (C.C.) district many trees were almost completely defoliated. A survey of the losses caused by Phytophthora citrophthora during four years of heavy rain and floods ending in 1951, was commenced during summer 1951 by field officers of the Horticulture division. It is not yet complete but figures so far available show that in the Windsor area (M.A.) which suffered severely from flooding, 98,000 of a total planting of 276,000 trees, are dead or unlikely to recover. In the Kurrajong (M.A.) and Asquith (M.A.) districts 10,000 trees are dead or declining. In the Gosford-Wyong districts (C.C.) 14,000 trees are dead or unlikely to recover, an estimated 221,500 bearing trees have been rendered temporarily unproductive and 5,000 young trees have suffered a setback but are expected to recover. In the Gosford (C.C.) area in particular an outstanding effect of the outbreak has been the number of orchards which though still classed as partially productive, must nevertheless be regarded as very inefficient units because of the partial loss of fibrous roots. These properties must still be operated under high management costs, but with hope of only very reduced returns for several more seasons. Even where fowls have been ranged, the effects of root rot in reducing vigour could often be observed.

In the M.I.A. as a result of moist winter conditions in 1951 and 1952, root rot is continuing to take toll of trees on rough lemon stock.

A little brown rot of fruit was noted in coastal orchards during late winter 1951, and in autumn 1952 following rains in March, but losses were insignificant.

Infection was reported from Grafton (N.C.) of yearling trees supplied by a metropolitan nursery.

BLACK SPOT (Guignardia citricarpa). Late Valencia orange crops were rather light generally throughout the central coast area, hence most crops were marketed relatively early in the summer. During several warm days in September some black spot development occurred on fruit on trees in exposed situations; however, this development was not extensive and damage was only slight. Because of heavy rains many orchards in the previous season received only one or two sprays for black spot-prevention, hence the control of this disease was not expected to be outstanding. Losses, however, were surprisingly light and growers generally marketed remarkably clean fruit. In the Hills District (M.A.) hot dry winds in late spring favoured

the development of black spot and there were some reports of heavy losses of Valencias during December. The harvesting of this crop was therefore hastened.

A number of cases of export Valencias were rejected on the wharves because of the development of black spot in the cases after packing. Fruit, however, that did reach Hamburg and Scandinavian ports apparently arrived in prime condition quite free from black spot. This fruit was regarded highly and raised keen competition among buyers.

In the Gosford (C.C.) district summer lemon crops on trees weakened by excessive rains in the previous seasons and the subsequent effects of root rot, in many instances developed a considerable number of small black spot lesions on the fruit as it coloured. Little or no extension of the spots occurred but the fruit was largely disfigured. Trees in reasonable condition, free from root rot injury, had their fruit only slightly if at all affected in this manner.

Some black spot also showed on intermediate crop lemons in Hills District (M.A.) orchards in January, 1952.

Because of the poor condition of trees and lack of crop many growers in the Gosford (C.C.) district did not apply the second black spot spray to the 1952 crop.

MELANOSE (Diaporthe citri). Despite the build up of infection in many coastal orchards during the past several seasons, infection of maincrop fruit in the past season was extremely slight. The summer drought created conditions totally unsuitable for infection of the leaves as well as the fruit. Practically no infection of any consequence was observed on Valencias, Washington Navels or lemons; however, some slight infection was observed on Wheeny grapefruit. Intermediate crops of fruit that were set after the autumn rains had broken the drought were observed to be severely affected with melanose in non- sprayed orchards. Flushes of autumn leaf growth were also similarly infected, particularly in old orchards. Twig and branch die-back due to the wood-rotting phase of this disease was also in evidence and was not restricted because of the dry condition. This condition too was seen in many old orchards and in trees weakened by other causes.

STEM END ROT (Diaporthe citri). Surveys made over the past several seasons have indicated that this condition on harvested citrus fruits, particularly oranges, tends to be significantly more serious, season after season, in certain plantings. This severity does not appear to be correlated with melanose infection or inoculum availability in the orchard. It is suspected that tree condition may be a factor.

SEPTORIA SPOT (Septoria depressa). Though present in some M.I.A. orchards, Septoria spot was not a problem in the 1951 season. A large proportion of the Washington Navel oranges was harvested well before the first Septoria was seen at the end of July. As the time of infection was much later than usual and as far as could be ascertained, was about mid June, it is suggested that instead of there being a varietal susceptibility among citrus it is rather a case of rind maturity in relation to time of infection which determines the degree of infection among the varieties of citrus. Frost was considered the prime factor which caused the symptoms of Septoria spot to appear in 1951.

Most growers are now very conscious of the necessity to spray for Septoria spot but some still risk a late application of the spray.

The disease has not yet been observed in coastal districts.

SCAB (Sphaceloma fawcettii scabiosa) was prevalent on intermediate crop lemons in the Hills District (M.A.) maturing in summer 1951. Main crop fruit set under dry conditions in spring 1951 was remarkably free of disease. In the central coast area also little or no infection of main crop fruit occurred even where sprays were not applied.

Rough lemon seedlings in several citrus nurseries were quite free from foliage infection throughout the summer and made exceptionally good growth.

BROWN SPOT OF EMPEROR MANDARINS (Cause undetermined).

This disease was again extremely destructive. In young orchards in the Hawkesbury River district (M.A.) early spring growth was badly blighted, and following rain in March new autumn growth was killed back. The fruit crop was at first free of spot but after the breaking of the dry period in March, infection was rapid and severe. By early June some growers had lost up to 60% of their crop. Greatest loss of fruit appears to occur when the level of available nitrogen is high, and particularly where fowl manure has been used, or fowls ranged in the orchard. There is at present no means known of controlling this disease and many growers of Emperor mandarins are preparing to work over a proportion of their young trees to Washington Navel oranges. In the Gosford district (C.C.) also the disease has increased in severity over the past several seasons.

Available evidence indicates that this disease is possibly of bacterial origin.

ARMILLARIA ROOT ROT (Armillaria mellea). There is some evidence that the activity of this disease increased during the past several abnormally wet seasons both in central coast and Hawkesbury River orchards. This is particularly noticeable on the red lateritic soil in the Somersby-Mangrove Mountain area of the central coast. Several large plantings of lemon trees also in the Somersby area have become so debilitated due to this disease that growers have removed the diseased trees and have used the ground for vegetable production.

GREEN AND BLUE MOULDS (Penicillium digitatum and P. italicum). Only slight losses due to this condition were experienced in packed citrus fruit on the local as well as overseas markets.

SOOTY BLOTCH (Gloeodes pomigena and Leptothyrium pomi). These diseases were of minor importance during the past season under central coast conditions.

DAMPING OFF (Rhizoctonia solani). This disease caused some losses of non-budded nursery trees at Narara Viticultural Nursery (C.C.). The principal varieties affected were Kharma Khatta and Cleopatra mandarin.

SCLEROTINIA BLIGHT (Sclerotinia sclerotiorum). This disease was of only minor importance under central coast conditions during the past season.

BOTRYTIS BLOSSOM BLIGHT (Botrytis cinerea). During protracted spells of wet weather in autumn, blossom blighting due to this disease was observed in several orchards affecting out of season blossoms of Washington Navel orange trees in the Gosford district (C.C.).

PINK DISEASE (Corticium salmonicolor). In the early spring one tree of Tahitian lime in a shaded position was observed affected at Terrigal (C.C.).

STEM PITTING (Virus). Position unchanged, see 1951 survey.

SCALY BUTT (Virus). Position unchanged, see 1951 survey.

PSOROSIS (Virus). Position unchanged, see 1951 survey.

SHELL BARK (Suspected virus). Position unchanged. An outbreak of bark shelling, following yellowing and crop failure was noted in 12 year old bitter-sweet Seville orange trees in a Colo (M.A.) orchard.

UNTHRIFTINESS OF ELLENDALE MANDARINS (Suspected virus). Position unchanged, see 1951 survey.

XYLOPOROSIS (Virus). A condition apparently identical with the Xyloporosis disease, as described in Palestine and Florida was observed affecting 3 twelve-year-old orange trees, said to be on rough lemon stock, in a Colo orchard (M.A.). When seen, one tree had died, and two had very sparse foliage, with die-back. The wood of the stock was closely pitted with rather small deep pits. Gum deposits were present in the phloem tissue.

FLORIDA OR RIO GRANDE GUMMOSIS (Suspected virus). Two cases of what appears to be this disease were reported from Curlwaa orchards (W.D.) during winter 1951. The trees were destroyed. The same condition had been seen in autumn 1951 in a Mildura (Vic.) orchard.

SUDDEN DEATH (undetermined). A number of additional cases have been reported of the sudden death of young vigorous trees on trifoliata stock, both in M.I.A. and coastal orchards.

YELLOW LEAF (Magnesium deficiency). This condition was much in evidence on trees of all ages and varieties throughout the central coast and metropolitan area, being particularly severe on trees that had suffered due to the wet seasons. Affected trees not only showed yellowing of leaves on the northern side in the autumn and winter, but were decidedly paler in colour throughout the entire year on this side of the tree. This condition is of first importance in limiting citrus production in central coast orchards. Magnesium deficiency has been noted in additional orchards on deep sandy soil at Stanbridge (M.I.A.).

EXANTHEMA (Copper deficiency). Many symptoms of exanthema have been observed in coastal orchards during the past season. Multiple shoots, multiple buds and terminal dieback of shoots have been noted in blocks of trees of reduced vigour. Particularly where trees have been affected by inadequate drainage, mild exanthema symptoms have been conspicuous.

MOTTLE LEAF (Zinc deficiency) was noted in a number of orchards in both the Murrumbidgee Irrigation Areas and Murray River (W.D.) district.

TRIFOLIATA STOCK AND SOIL pH. An unthrifty condition of young Valencias on trifoliata stock noted at Wamoon (M.I.A.) has been rectified by lifting the soil pH from 4.2 to 5.0 by one application of lime. Almost twelve months elapsed after the application before an improvement was discernible.

DIE-BACK OF WHEENY GRAPEFRUIT (probably nutritional). Cases of moderate to severe die-back associated with heavy cropping were recorded from a number of coastal orchards.

WATER SPOT (non-parasitic). Very few losses occurred in central coast orchards during the past season.

LEAF YELLOWING. Many young citrus particularly in the Lower Murray River area (W.D.) have shown exceptionally severe yellowing during late autumn and winter. In all cases the trees had made vigorous growth. The condition is thought to be due to temporary starvation of nitrogen.

POME FRUITS

The apple crop this season was the largest of the post-war period, the Granny Smith yield being the highest ever recorded in this State. The setting of fruit was heavy but the size of early and midseason fruit was reduced by the late spring and summer drought. However, abundant autumn rains allowed adequate sizing of late varieties.

The pear crop was below average due to a poorer setting and to damage by hail early in the season.

APPLE

BLACK SPOT (Venturia inaequalis). No difficulty was experienced in controlling black spot this season. On unsprayed trees ascospore infection was quite heavy in October. With the advent of autumn rains which delayed harvesting, there were several instances where heavy late infection occurred. In these instances growers had failed to recommence spraying which had been discontinued during the summer drought. Further outbreaks occurred in unsprayed orchards in the Yanco section of the Murrumbidgee Irrigation Area.

LIMB CANKER AND DIE-BACK (Dothiorella sp). The limb canker phase of this die-back complex re-appeared in the Metropolitan area for the first time since the previous drought season 1946-47, and with devastating severity. All varieties grown in this area have been found to carry some degree of infection but the variety most severely damaged was Kirk's Carrington. Within each variety the intensity of infection appeared to be conditioned by the degree of drought stress, infection being very slight in those trees which were adequately irrigated.

There was very little evidence of the spur blighting phase of the complex this season.

POWDERY MILDEW (Podosphaera leucotricha) was prevalent throughout the State this season, especially on the Jonathan variety. In the Metropolitan Area severe infection was commonly observed on Jonathan and Kirk's Carrington.

McINTOSH TRUNK CANKER (? Dothiorella sp.) There was slight infection at Oakdale (S.C.) this season.

WATERCORE (Physiological) was recorded from all districts, and it is feared that a considerable amount of breakdown may occur in storage. A form of high temperature breakdown was common in inland areas following the development of early surface watercore.

BITTER PIT (Physiological). Tree pit occurred to a minor degree in most orchards in a wide range of varieties. Although the season was conducive to the development of bitter pit, this was largely offset by the heavy crops of relatively small fruit.

JOHATHAN SPOT (Physiological) was more prevalent than for some years.

HEART ROT (Schizophyllum commune) was noted on old and damaged trees in most districts but it seems to be most prevalent in coastal areas.

YELLOW WOOD ROT (Polystictus versicolor) was noted on occasional trees throughout the State but especially in the Batlow district (S.W.S.).

MOSAIC (Virus) occurred throughout the state especially on the Jonathan variety.

HAIL which occurred very early in the season caused considerable damage in all tableland districts. A high proportion of fruit was marked but little or no distortion occurred.

SUNSCALD was observed on limbs of Granny Smith trees at Griffith (M.I.A.). The damaged areas were subsequently invaded by Cytospora sp. Delicious and Jonathan trees in the same orchard were not affected.

LENTICEL SPOT. This form of light induced scald was fairly common on late maturing varieties.

SUNBURN was common on exposed fruit.

PEAR

BLACK SPOT (Venturia pyrina). A considerable amount of infection occurred in many orchards throughout all pear growing districts very early in the season. Intensification of spraying schedules and drought conditions through the summer prevented the occurrence of any major losses. A minor degree of infection occurred in numerous orchards on the Murrumbidgee Irrigation Areas being more severe in the Yanco area.

FLECK (Fabraea maculata). No infection was noted this season.

HAIL caused considerable losses in all tableland districts.

SALT injury was observed at Leeton (M.I.A.).

QUINCE

FLECK (Fabraea maculata). Heavy infection occurred on unsprayed trees in coastal and tableland areas early in the season. By the time that drought conditions had commenced toward the end of October infection had also been noted in inland areas such as Young (S.W.S.) and the Murrumbidgee Irrigation Areas.

STONE FRUITS

The season was favourable for the growth and harvesting of stone fruits especially in tableland districts, and in inland and coastal areas where irrigation was practised. Disease losses were slight and high yields were recorded from most districts.

ALMOND

SHOT HOLE (Clasterosporium carpophilum) was common on the Murrumbidgee Irrigation Areas with occasional instances of severe infection involving shoot blighting, defoliation and subsequent fruit drop. The disease also occurred to a minor degree at Young (S.W.S.).

RUST (Puccinia pruni-spinosae) was observed on the Murrumbidgee Irrigation Areas.

APRICOT

BACTERIAL CANKER (Pseudomonas syringae). Infection was slightly greater than for the past three years on the Murrumbidgee Irrigation Areas. Infection was also observed on some 50 to 60 per cent of trees in a consignment of 500 received at Griffith, (M.I.A.) from Victoria. Elsewhere in the state the disease was of no consequence.

BROWN ROT (Sclerotinia fructicola). Blossom blighting was general throughout the Murrumbidgee Irrigation Areas, in some cases being severe enough to reduce the crop. With the change to dry conditions there was no evidence of brown rot on the mature fruit. In early maturing varieties in the Hills District (M.A.) there was some infection of shoots and green fruit in early October but with the advent of hot dry weather the disease made no progress and mature fruit escaped infection.

SHOT HOLE (Clasterosporium carpophilum). On the M.I.A. infection was heavier than in recent seasons, but as usual the scabs flaked off the fruit before harvest in most instances. In coastal districts and at East Kurrajong (C.T.) infection was heavy. At East Kurrajong the new variety Caselin appeared to be less susceptible than the standard varieties. The disease was also recorded in all tableland districts and at many inland centres.

FRECKLE (Cladosporium carpophilum) was again severe in early maturing varieties in coastal districts, heavy infection being evident by the end of October.

BLACK HEART (Verticillium dahliae) is still occurring in young trees on the Murrumbidgee Irrigation Areas. Growers at Griffith (M.I.A.) are becoming concerned at the scarcity of land which has not previously carried tomato crops and is suitable for planting with apricots.

RUST (Puccinia pruni-spinosae). On unsprayed trees at East Kurrajong (C.T.) infection was heavy by the end of October, but trees which had been sprayed with Bordeaux mixture at budswell were free of infection. In coastal districts infection did not occur until late in the season.

SHOOT BLIGHT AND FRUIT ROT (Sclerotinia sclerotiorum). This fungus causes a rot of green fruit and a shoot blight in the early apricots in the East Kurrajong District (C.T.). This season, however, there was no fruit infection and only a trace of shoot infection.

YELLOW WOOD ROT (Polystictus versicolor) was observed on old trees throughout the State, and especially on those trees which are still dying following the effects of flooding in 1950.

LEAF CURL (Taphrina deformans). There was a trace amount of infection on the Murrumbidgee Irrigation Areas, but it was not observed elsewhere.

INTERNAL BREAKDOWN (Non-parasitic) was more prevalent on the Murrumbidgee Irrigation Areas than for a number of years.

CHERRY

BACTERIAL CANKER (Pseudomonas syringae). Infection was very slight this season, occasional lesions only being detected at Orange (C.T.).

BROWN ROT (Sclerotinia fructicola). A little blossom blight was detected but the cherry harvesting season was ideal and no brown rot infection occurred.

CHERRY LEAF SPOT (Coccomyces hiemalis) was not detected this season.

SHOT HOLE (Clasterosporium carpophilum and Cercospora circumcissa) was of widespread occurrence.

SPLITTING OF FRUIT occurred at Orange (C.T.) in the earliest maturing varieties but losses were very slight.

NECTARINE

BROWN ROT (Sclerotinia fructicola) caused no losses.

LEAF CURL (Taphrina deformans). Infection was heavy in tableland districts wherever control measures were neglected or imperfectly applied.

RUST (Puccinia pruni-spinosae). In coastal districts infection occurred later than usual. Premature defoliation was common. In tableland and inland areas the disease was of no consequence.

FRECKLE (Cladosporium carpophilum). Slight infection was observed by the end of December in coastal districts but no loss of any consequence was reported.

SHOT HOLE (Clasterosporium carpophilum) was prevalent early in the season.

PEACH

BROWN ROT (Sclerotinia fructicola) caused no losses in any district this season except that in the Hills District (M.A.) there was some slight infection of fruit which had been damaged by hail. In the City of Sydney area (M.A.) the disease occurred in numerous backyards in fruit damaged by the peach tip moth.

RUST (Puccinia pruni-spinosae) was of very low incidence on the Murrumbidgee Irrigation Areas and caused no fruit losses and negligible foliage damage. Cankers from the 1950-51 epiphytotic are still evident on the two-year old wood. In coastal districts the onset of infection was delayed by the dry weather. However, infection was general on early maturing varieties in December. Brief rains in January allowed the disease to become firmly established and many trees were almost defoliated by the beginning of February at the height of the drought.

LEAF CURL (Taphrina deformans). Infection was very heavy in all inland and tableland districts and in some coastal orchards. It was the most serious disease of peaches on the Murrumbidgee Irrigation Areas this season on unsprayed or ineffectively sprayed trees.

CROWN GALL (Agrobacterium tumefaciens). Infection in nurseries was generally slight.

FRECKLE (Cladosporium carpophilum) occurred to slight degree on the later varieties in the Hills District (M.A.). The incidence generally was negligible.

BACTERIAL CANKER (Pseudomonas syringae). A heavy infection of laterals and the smaller limbs occurred in a block of young trees at Orange (C.T.).

SHOT HOLE (Clasterosporium carpophilum). In the Hills District (M.A.) early in the season there was a heavy infection of leaves. By December, new growth was free of infection. In one orchard the variety Wotton was very heavily infected. Blackburn growing alongside these trees showed very mild infection.

ROOT ROT (Phytophthora cinnamomi). No new infection was observed in nurseries this season. However, infection was fairly general in young trees planted during the 1951 winter and subjected to drought condition with periodic irrigation from October to March. Many of these trees succumbed after gumming profusely around the crown. Many trees which had suffered root damage during the floods of 1950, failed to survive the hot dry conditions of this Summer.

POWDERY MILDEW (Sphaerotheca pannosa) was again severe in an orchard at Stanbridge (M.I.A.) where the source of inoculum has been established as an adjacent hedge of Dorothy Perkins rose. Elsewhere on the M.I.A. the incidence was very slight. The disease was also recorded at Merriwa (C.T.), and a light but general infection occurred in a planting of Blackburn and Wotton varieties at Glenorie (M.A.).

YELLOW WOOD ROT (Polystictus versicolor) was observed in old trees and those dying from other primary causes.

WATER SPOT (non parasitic). Only a few specimens were observed on the Murrumbidgee Irrigation Areas.

INTERNAL BROWNING (non parasitic) was not observed this season.

PLUM

BROWN ROT (Sclerotinia fructicola). Although some infection was noted on green fruit early in the season, no losses occurred as the fruit matured.

RUST (Puccinia pruni-spinosae). There was very little infection anywhere in the State. Prunes on the Murrumbidgee Irrigation Area and at Young (S.W.S.) were virtually free of infection.

SHOT HOLE (Clasterosporium carpophilum). Some leaf damage occurred early in the season in coastal districts but the disease was of no consequence throughout the State.

ZINC DEFICIENCY was recorded at Denman (C.C.).

TROPICAL FRUITS

BANANA

BUNCHY TOP (Virus). Records compiled by the Division of Horticulture show a further decrease in the incidence of this disease. The number of affected plants found and destroyed during the year was 3654 compared with 3831 for the preceding year; the present acreage being 24,193. In the eradication zones of Clarence and Yarrahappini (N.C.) the disease was again seen after a lapse of some years. The last bunchy top plants found in the Clarence area were at Harwood Island in 1946 and at Martin's Point in 1947. Three plants were found in the Clarence area on 4th February, 1952. At Yarrahappini the last plant was found in 1947. Steps were taken recently to eradicate all plantations in this area in which there had ever been a record of the disease. In February, 1952 the disease was detected in a regrowth in one of the plantations.

LEAF SPOT (Cercospora musae). Losses from leaf spot were again heavy in the Tweed and Brunswick districts but were overshadowed by drought in the spring 1951 and frost damage in the winter of 1952.

SQUIRTER (Nigrospora sphaerica). This disease has almost disappeared since the introduction of compulsory dipping in salicylanilide before marketing.

CUSTARD APPLE

LEAF SCALD, DIE-BACK and BROWN ROT (Phytophthora palmivora). There were no further reports of this disease. The identity of the pathogen was determined by the Commonwealth Mycological Institute from specimens submitted by the Queensland Dept. of Agriculture and Stock.

PASSIONFRUIT

BROWN SPOT (Alternaria passiflorae). Drought conditions in the spring and summer restricted the development of this disease and few reports of it were received.

WOODINESS (virus). This disease is widespread in all plantations and contributes greatly to shortening the productive life of plantations. Surveys made this year confirmed those made previously in showing that almost all young vines become infected with the virus by their first winter. Isolates from infected vines when studied in differential hosts are found to be strains of cucumber mosaic virus.

PINEAPPLE.

WILT (Phytophthora cinnamomi). Was present in several plantations on the far north coast affecting especially the Smooth Cayenne variety. P. cinnamomi was isolated from roots of wilted plants by an officer of this Department working at the University of Sydney and shown to be capable of infecting healthy young roots.

TOP ROT (Phytophthora cinnamomi). Caused limited damage in several young plantations. The variety which suffered most was Smooth Cayenne.

YEASTY ROT (Saccheromyces sp.) One report of this disease was received during the year from the Sydney markets.

MISCELLANEOUS FRUITS

GRAPES

DOWNY MILDEW (Plasmopara viticola). On the coast and tablelands, as a result of very dry conditions in the spring and summer, downy mildew development was slight and easily controlled. On the Murrumbidgee Irrigation Areas and Murray River (W.D.) vine districts also, there was little or no development of the disease.

BLACK SPOT (Elsinoe ampelina). Early spring weather before the onset of drought conditions, was favourable for black spot development and heavy infection of young inflorescences was recorded from the Hills district on Black Muscat, and from Stanbridge (M.I.A.) on unsprayed sultanas, with resultant loss of fruit. Subsequent development ceased as the weather became dry and warm. Black spot was recorded from Parkes (C.W.S.), causing slight damage.

At Koraleigh (W.D.) where early spring infection of sultanas has been a serious problem for some years, the amount and degree of infection was less than in the previous 3 years.

POWDERY MILDEW (Uncinula necator) development was less than usual in the Murray River (W.D.) sultana vineyards during summer.

DYING VINES (suspected virus) a few new cases were reported from the Wentworth (W.D.) area.

STUNT (virus disease of Black Shiraz). No new records.

LEAF SCORCH (cause not known) affected vines of White and Black Muscat varieties in sections of the Liverpool (M.A.) district, causing reduction in vigour and cropping.

SALT INJURY was reported from some undrained vineyards in the Coomealla settlement (W.D.).

STRIPED BERRIES. About 20 vines of Black Muscat in a vineyard at Camden (S.C.) produced fruit showing marked striping which showed up particularly as skin pigmentation commenced. The vines were as vigorous and productive as normal vines, and the condition is thought to be due to a mutation rather than to virus infection.

BUNCH STALK COLLAPSE. Some loss of fruit of Doradillo in the Griffith (M.I.A.) area resulted from scalding and collapse of bunch stalks during very hot dry weather just prior to harvest.

LOQUAT

No records.

MULBERRY

LEAF SPOT (Septogloeum mori) was recorded from many districts throughout the state but infection was not heavy.

BACTERIAL BLIGHT (Pseudomonas mori) was recorded from the Murrumbidgee Irrigation Areas and there were several records of its occurrence in coastal and tableland districts but infection was light.

OLIVE

LEAF SPOT (Cycloconium oleaginum) caused severe defoliation at Cobbity (S.C.)

PECAN

No records.

STRAWBERRY

CRINKLE and YELLOW EDGE (Viruses) were prevalent.

LEAF DISEASES (Mycosphaerella fragariae, Diplocarpon earliana and Dendrophoma obscurans) were little in evidence during spring and summer, but some development, particularly of Mycosphaerella occurred following autumn rains.

WILT (Rhizoctonia solani) was noted at Bathurst Experiment Farm (C.T.) affecting a number of seedling selections.

ROOT KNOT (Heterodera marioni) was recorded for the first time on strawberries in N.S.W. from a metropolitan crop grown from runners obtained from Queensland. It is possible that this may indicate the introduction of a strain not previously present in N.S.W. to which strawberries are susceptible.

ORNAMENTAL PLANTS

ACANTHUS

ROOT KNOT (Heterodera marioni) was recorded for the first time in N.S.W. on this host from a metropolitan garden.

AMARYLLIS

LEAF SPOT (Physoderma sp.) was recorded for the first time on Amaryllis belladonna from a Somersby (C.C.) garden, following the cool wet conditions of winter 1951. Damage was not severe.

ANTIRRHINUM

DOWNY MILDEW (Peronospora antirrhini) was noted in several metropolitan nurseries during late winter but disappeared completely during the subsequent prolonged period of dry hot weather.

ASTER

FUSARIUM WILT (Fusarium oxysporum callistephi) was again rather prevalent in early planted commercial crops in the Metropolitan Area.

BEGONIA

LEAF NEMATODE DISEASE (Aphelenchoides fragariae) was recorded for the first time in N.S.W. on this host from a metropolitan garden.

STEM ROOT ROT (Pythium splendens) was recorded from Broadmeadow (C.C.).

CROWN ROT (Sclerotium rolfsii) was recorded for the first time in N.S.W. on Begonia sutherlandii from a metropolitan garden.

CALENDULA

RUST (Puccinia distincta) was again prevalent in most districts.

LEAF SPOT (Entyloma sp.) was noted causing severe damage in a late winter crop grown adjacent to late flowering dahlias in a metropolitan flower farm.

CAMPANULA

GREENING (Big bud virus) was recorded for the first time in N.S.W. on Campanula lactiflora from a metropolitan garden.

CANTERBURY BELL

CROWN ROT (Sclerotium rolfsii) was noted at Hawkesbury Agricultural College (M.A.).

CARNATION

WILT (Fusarium dianthi) was again prevalent in sandy soils in metropolitan and central coast flower farms.

BRANCH BLIGHT (Alternaria dianthi) was recorded from several metropolitan flower farms during autumn.

COLLAR ROT (Rhizoctonia solani), LEAF SPOT (Septoria dianthi) and RUST (Uromyces caryophyllinus) were relatively unimportant.

CHRYSANTHEMUM

POWDERY MILDEW (Oidium sp.). The prolonged warm dry weather of spring and summer evidently favoured this disease which appeared during the summer well before flowering, causing some slight reduction in vigour in susceptible varieties.

LEAF NEMATODE (Aphelenchoides ritzema-bosi) was of less importance than in the preceding 4 years and was well controlled by the application of 1 or 2 sprays of E 605 during autumn. Where sprays were not applied there was some build-up just prior to harvest following March rains but losses were generally not heavy.

CROWN ROT (Phytophthora sp.) was recorded for the first time on a number of commercial varieties growing in poorly drained soil at Ermington (M.A.). It is thought that this organism was responsible for considerable losses during winter 1951.

STUNT (? Canadian stunt mottle virus). This virus disease was again noted in a number of metropolitan crops causing deterioration in bloom quality and colour break in some coloured varieties. There is evidence that eradication could be achieved by careful rogueing at harvest, combined with aphid destruction by E 605 sprays which are now routine for foliar eelworm control.

CYMBIDIUM

MOSAIC (Virus) was noted from a number of sources.

BULB ROT (Pythium splendens) was recorded for the first time in N.S.W. on this host from a metropolitan nursery, causing heavy losses. Some losses due to Sclerotium rolfsii were also reported.

DAFFODIL

MOSAIC (Virus) was noted from a number of sources. Infected plants of variety Campernelle from Leeton (M.I.A.) showed deformation and abnormality of flowers. The disease had not previously been noted in this variety.

NEMATODE (Anguillulina dipsaci) was reported from Mt. Wilson (C.T.) and Bundanoon (S.C.).

DAHLIA

STUNT (Dahlia stunt virus) was again noted to be very prevalent in nurseries and home gardens.

POWDERY MILDEW (Oidium sp.) developed unusually early, being favoured by warm dry spring and summer conditions and control measures were necessary in some gardens by December.

SPOTTED WILT (Tomato Spotted Wilt virus) was of very minor importance, developing in late autumn following March rains.

BLACK STREAK (? virus) was reported from Lismore (N.C.) and the metropolitan area.

DELPHINIUM

POWDERY MILDEW (Erysiphe polygoni) was recorded from Bowral (S.C.) and the Metropolitan Area.

ELM

LEAF SPOT (Septogloeum ulmi) was noted at Mt. Wilson (C.T.) causing less injury than in previous years.

GLADIOLUS

YELLOWS (Fusarium orthoceras f. gladioli) was reported for the first time in N.S.W. in commercial crops at Schofields (M.A.), Terrey Hills (M.A.), Milperra (M.A.), Ryde (M.A.) and Bathurst (C.T.). There is evidence that it has been introduced probably within the last few years from Victoria and Holland. The warm dry weather of the 1951-2 summer provided ideal conditions for its development and individual heavy losses were occasioned. Growers are attempting to isolate infested areas and are destroying affected lines of corms in an endeavour to prevent the spread of the disease. It is noted that a number of varieties found to be susceptible are listed as resistant in the U.S.A. These include Beacon, Ethel Cave Cole, Picardy, Snow Princess, Spotlight and Leading Lady. Many more recently introduced American and Dutch varieties are susceptible, including Evangeline, Pactolus, General Eisenhower and Paul Rubens.

HARD ROT (Septoria gladioli), DRY ROT (Sclerotinia gladioli) and SCAB (Pseudomonas marginata) were reported from a number of localities, causing minor losses. An unusual type of rotting of the first formed roots and also of the bases of the contractile roots formed below the current season's corm was found to be due to Sclerotinia gladioli. The disease results in leaf yellowing or leaf tip burn.

BOTRYTIS DISEASES (Botrytis gladiolorum) were of negligible importance. Weather conditions throughout the growing season were very dry and warm.

GLOXINIA

FOLIAR NEMATODE (Aphelenchoides fragariae) was recorded for the first time in N.S.W. on this host from a metropolitan garden.

HYDRANGEA

POWDERY MILDEW (Oidium sp.) was rather prevalent in metropolitan gardens.

ICELAND POPPY

POWDERY MILDEW (Oidium sp.) was noted in metropolitan gardens, developing very heavily on late spring crops.

SPOTTED WILT (Tomato Spotted Wilt virus) was of negligible importance.

IMPATIENS (Sultan's Balsam)

WILT (Verticillium dahliae) was recorded for the first time on this host from a metropolitan garden.

IRIS

LEAF SPOT (Heterosporium gracile) caused severe injury to Iris germanica under cool wet conditions in early spring, 1951 at Mt. Wilson (C.T.) and elsewhere. Later in the season under dry hot conditions the disease was of little account.

MOSAIC (Iris Mosaic virus). Two types of virus, mild and severe, were noted on Wedgewood iris at Castle Hill (M.A.). Both caused leaf mottle and flower colour break. Many records of mosaic on Dutch iris were received.

JACARANDA

ROOT ROT (Phytophthora cinnamomi) was reported from Dyer's Crossing (C.C.) and Gosford (C.C.).

LARKSPUR

LEAF SPOT and CROWN ROT (Diplodina delphinii) was recorded for the first time on this host, causing considerable losses in a metropolitan nursery. There was clear evidence of differences in varietal susceptibility, some varieties being completely immune.

LEPTOSYNE

WILT and ROOT ROT (Phytophthora sp.) was recorded for the first time on this host in N.S.W. from a metropolitan garden.

LILY

BULB ROT (Sclerotium rolfsii) caused losses of Tilium regale in a metropolitan nursery.

MOSAIC (Virus) was noted in a number of coastal and tableland localities.

LIME (Tilia sp.)

LEAF SPOT (Cercospora microspora). Defoliation caused by this disease was of much less severity than in previous years at Mt. Wilson (C.T.).

LUCULIA

ROOT KNOT (Heterodera marioni) was recorded for the first time on this host in N.S.W. from a metropolitan garden.

LUPIN

STEM ROT (Sclerotinia sclerotiorum) was reported from a metropolitan garden.

MICHAELMAS DAISY

POWDERY MILDEW (Oidium sp.) was recorded rather earlier than usual from the Metropolitan Area and from Bowral (S.C.).

OCHNA MULTIFLORA

LEAF SPOT (Phyllosticta sp. associated) was noted from a metropolitan garden.

OX-EYED DAISY (Chrysanthemum leucanthemum)

LEAF SPOT (Septoria sp.) was noted from Mt. Wilson (C.T.).

PANSY

SMOTHERING (Physarum cinereum). A considerable development of slime mould following wet weather had a smothering effect on pansies at Uralla (N.T.).

PELARGONIUM

RUST (Puccinia pelargonii-zonalis) was again noted from many sources.

PEONY

LEAF SPOT (Septoria paeoniae) was noted from Mt. Wilson (C.T.).

GREY MOULD (Botrytis paeoniae) was noted causing flower bud injury at Mt. Wilson (C.T.).

PERENNIAL PHLOX

LEAF SPOT (Septoria divaricata) was recorded at Mt. Wilson (C.T.).

PETUNIA

GREENING (Big bud virus) was reported from Blackheath (C.T.).

POPLAR

DIEBACK (Cytospora chrysosperma) was recorded on Populus canadensis from Kentucky (N.T.).

PRIMULA

ROOT ROT and WILT (Phytophthora sp.) were recorded from a metropolitan garden.

WITCHES' BROOM (Ring spot type of virus) was recorded from Goulburn (S.T.).

RHODODENDRON

LEAF SPOT (*Cercospora* sp.) was recorded from Mt. Wilson (C.T.) causing minor injury to old leaves.

ROSE

BLACK SPOT (*Diplocarpon rosae*) was little in evidence in coast and tableland districts until late March, following autumn rains. It was noted at Leeton in early spring, but did not develop seriously.

POWDERY MILDEW (*Sphaerotheca pannosa*) was rather general and developed early in the season under warm dry conditions. It was noted as early as end of September at Leeton (M.I.A.).

MOSAIC (virus) was noted from Coonamble (C.W.P.).

SCILLA

RUST (*Uromyces scillarum*) was reported for the first time in N.S.W. from Mt. Wilson (C.T.) causing considerable damage under cool wet conditions in early spring.

STOCK

BLACK ROT (*Xanthomonas incanae*) was recorded causing fairly severe losses in metropolitan flower farms during autumn 1952.

SWEET PEA

ROOT ROT (*Pythium* sp.) was recorded from several metropolitan gardens.

VIOLET

SCAB (*Sphaceloma violae*). Some development followed rain in March, 1952, in metropolitan gardens.

WATER LILY

LEAF SPOT (*Entyloma nymphaeae*) was reported for the first time in N.S.W. from Mt. Wilson (C.T.). Most varieties appear to be resistant to the disease which was noted to be serious only on one type.

ZINNIA

POWDERY MILDEW (*Oidium* sp.) developed rather early on summer plantings in the metropolitan area.

ROOT KNOT (*Heterodera marioni*) was recorded for the first time in N.S.W. on this host, from a metropolitan locality.

SPOTTED WILT (Tomato Spotted Wilt virus) was reported from Leeton (M.I.A.).

VEGETABLES

ASPARAGUS

No records.

BEAN

The bean seed certification scheme was continued this season. Fifty-two growers applied for certification, there being a total of 97 crops on 416 acres. Of these, 86 crops were passed for certification, the total area certified being 271 acres. It is estimated that the total certified seed yield will be about 4200 bushels of which 1775 bushels (42%) are Brown Beauty and 1225 bushels (29%) are Hawkesbury Wonder. Other varieties passed for certification were Tweed Wonder, Windsor Longpod, Goward's Special and Wellington Wonder. Six crops were rejected, three on the presence of anthracnose, one on lack of vigour and two because eaten by stock. Five crops were not inspected.

HALO BLIGHT (Pseudomonas phaseolicola). During inspection of seed crops on the south coast this season, halo blight was not seen. The absence of this disease may, to some extent, have been due to the unusually dry season, but it is thought that the programme of mother seed selection that has been carried out is responsible, to a large degree, for the general low incidence of bacterial diseases on the south coast. Halo blight was found in one crop of Brown Beauty grown from uncertified seed at Gosford (C.C.) where only a few plants were attacked. The disease was also seen in one bean crop at Duranbah (N.C.).

ANTHRACNOSE (Colletotrichum lindemuthianum). This disease was not as prevalent as usual. Three cases only were recorded on the south coast. The general dry weather over most of the State considerably reduced incidence of this disease. Work continued on the building up of lines of Brown Beauty 100% resistant to strain - 1 (the American Beta) of the fungus and very variable results were obtained with seed from different sources. In certain strains some correlation was seen to exist between seed coat colour and strain - 1 resistance, the darker seeded selections being, in most cases, the more resistant types. However, attempts to segregate resistant and susceptible types by colour grading other strains of Brown Beauty and in other varieties were not so successful.

Other varieties, such as Canadian Wonder and New Discovery, have also been found sometimes to be mixtures of anthracnose strain-1 - resistant and susceptible types. Certain crosses were also examined for anthracnose resistance and selections from two of these (Tweed Wonder x Red Mexican and Logan x Granda) showed some resistance to both strains of anthracnose (American Beta and Gamma). In some cases, however, resistance was not complete.

ANGULAR LEAF SPOT (Isariopsis griseola). There was one record of this disease from Dignam's Creek (S.C.) during the summer. Infection was light and irregularly distributed through the crop. However, in the later crops of Tweed Wonder and Windsor Longpod, angular leaf spot was quite heavy on the south coast.

RUST (Uromyces phaseoli typica). Rust was widespread in many areas on both climbing and dwarf beans. Reports were received from Berkeley Vale (C.C.) and Dignam's Creek (S.C.) and many places in the Metropolitan Area. On the whole, infections were light and the dry summer weather retarded the spread of the fungus.

Work continued on the testing of bean varieties for rust resistance and, using a dwarf bean strain of rust, six selections were found to show resistance. These included a selection of Kentucky Wonder from Western Australia and a selection of Morses No. 65.

AMERICAN COMMON BLIGHT (Xanthomonas phaseoli). No records of this disease were obtained during the past year.

BACTERIAL BROWN SPOT (Pseudomonas syringae). Several records of this disease on seed bean crops were obtained from the south coast. Infection was very light and it was the only bacterial disease seen on the south coast this season.

SCLEROTIUM ROT (Sclerotium rolfsii). This disease was recorded from Leeton (M.I.A.) and the Metropolitan Area. At Leeton (M.I.A.), approximately 5% of a planting of the variety Topcrop was affected.

SCLEROTINIA STEM ROT (Sclerotinia sclerotiorum) was recorded on Topcrop beans at Leeton (M.I.A.).

YELLOW MOSAIC (Bean virus 2) was reported from several places on the northern and southern tablelands, the central coast and the Metropolitan Area. On the central coast, the disease was associated with heavy aphid infestation. Inoculation work with this virus showed that certain Brown Beauty selections were resistant to the disease. It is thus possible to split this variety on the basis of its reaction to yellow bean mosaic in the same way as it was split on the basis of its reaction to strain-1 of the anthracnose fungus. However, so far the anthracnose resistant selections have been yellow mosaic susceptible and visa versa but it is hoped that it will be possible to locate and build up some Brown Beauty selections resistant to both strain-1 of anthracnose and yellow mosaic.

MOSAIC (Bean virus 1). One report of a disease resembling bean mosaic was obtained from Carlingford (M.A.).

MOTTLE LEAF (Non-parasitic) was seen in crops of Tweed Wonder beans at Wamberal (C.C.), Berkeley Vale (C.C.) and Matcham (C.C.). The effect on the crop of this hereditary abnormality was more severe at the pre-flowering stage than later in the life of the plants.

SCALD (Molybdenum deficiency). One report of this disease was received from Charlestown (C.C.) on the variety Hawkesbury Wonder during the autumn of 1952.

FUSARIUM ROOT and STEM ROTS and WILTS (Fusarium spp.). Several reports of these diseases were received from places on the central coast, Murrumbidgee Irrigation Areas and Sydney Metropolitan Area.

RHIZOCTONIA ROOT and STEM ROT (Rhizoctonia solani). This disease was common in home gardens during the summer months but caused little damage in commercial crops. It was reported from Batlow (S.T.), Leeton (M.I.A.) and several places in the Sydney Metropolitan Area.

ASHY STEM BLIGHT (Macrophomina phaseoli) was recorded from Batlow (S.T.). No definite symptoms were present but the pathogen was isolated.

ROOT KNOT (Heterodera marioni); recorded from Orange (C.T.) and several places in the Sydney Metropolitan Area.

GRAY MOULD (Botrytis cinerea) caused a rot of pods at Mt. Wilson (C.T.).

WITCHES' BROOM (? Tomato big bud virus) was recorded from the northern tablelands. No appreciable loss was sustained from this disease which appears to be spread by leaf-hoppers.

SUN SCALD was reported on beans of the variety Stayley's Surprise at Port Macquarie (C.C.). Pods were mainly affected and the disease showed as black elongated areas running obliquely across them.

FERTILIZER INJURY. Bean plants showing symptoms suggestive of injury by a nitrogenous fertilizer were submitted from Orange (C.T.). The nitrate content of the leaves was excessively high.

HORMONE INJURY (?). Numerous small stem proliferations seen on beans submitted from Fairfield (M.A.) may have been due to hormone injury.

CHEMICAL INJURY. Beans showing symptoms of injury, probably due to sulphur application in hot weather, were reported from Gulargambone (C.W.P.). Secondary injury due to bacteria and a species of Fusarium was also noted.

SMALL SEEDLESS PODS (Cause unknown). Beans at Croydon Park (M.A.) were reported as producing small pods containing no seeds.

BEANS, BROAD

CHOCOLATE SPOT (Botrytis sp.) was recorded from Armidale (N.T.) and Bowral (S.T.) during the past season.

RUST (Uromyces fabae). Severe outbreaks of rust occurred at Newcastle (C.C.), Wingello (S.T.) and several places in the Sydney Metropolitan Area.

ROOT ROT (Rhizoctonia solani). One record from the Sydney Metropolitan Area.

VASCULAR WILT (Virus) was reported from Bellingen, (N.C.)

BEAN, NAVY OR FIELD.

AMERICAN COMMON BLIGHT (Xanthomonas phaseoli) was reported from Glen Innes (N.T.). This is the main disease of field beans in N.S.W., and attacks all the varieties commonly grown.

BEAN, SCARLET RUNNER

POWDERY MILDEW (Oidium sp., probably Erysiphe polygoni). A very severe outbreak of this disease was recorded from Yagoona (M.A.) in March, 1952. This is a new record for New South Wales.

BEAN, VELVET

VIRUS DISEASE (?). A disease possibly due to virus infection was reported from Grafton (N.C.) during the season. Leaves of affected plants were mottled, showing light green areas nearest to the central vein and their under surface showed a bluish colour in many cases.

BEET AND SILVER BEET

CERCOSPORA LEAF SPOT (Cercospora beticola). As usual there were many records of this disease, mainly from home gardens in the Sydney Metropolitan Area.

STEM ROT (Rhizoctonia solani). High temperatures during the summer period favoured attack by this fungus. A complete crop of silver beet was affected at Engadine (M.A.) and there were a number of other records from the Sydney Metropolitan Area.

ROOT KNOT (Heterodera marioni). Many records on both beet and silver beet from the Metropolitan Area.

MOSAIC (? Virus). Specimens of silver beet showing mottling of the leaves similar to that described for beet mosaic were received from Chatswood (M.A.).

CAPE GOOSEBERRY

No records.

CARROT

CERCOSPORA LEAF SPOT (Cercospora carotae). One record from the Tweed River (N.C.).

ROOT ROT (Phytophthora sp.) caused moderate damage in a crop at Griffith (M.I.A.).

GREENING OF FLOWERS (Tomato big bud virus) recorded from Richmond (M.A.).

CELERY

LATE BLIGHT (Septoria apii-graveolentis) caused severe damage in a crop at Hamilton (C.C.) and was also recorded from Dural (M.A.).

CRUCIFERS

BLACK ROT (Xanthomonas campestris). There were many records of this disease in cauliflower, cabbage and broccoli crops during the year. Generally, infections were light and the disease was confined to the outer edges of leaves, this type of infection occurring irrespective of hot water seed treatment. Odd specimens showing infection indicative of seed transmission were received.

DAMPING OFF, WIRESTEM, FOOT and ROOT ROT (Rhizoctonia solani). Several records of damping off of cauliflower and cabbage seedlings from the Metropolitan Area and Robertson (S.C.). Wirestem and foot and root rots were recorded on cabbage, cauliflower, broccoli and brussels sprouts in various localities. The high summer temperatures which necessitated frequent watering of plants was extremely favourable for Rhizoctonia attack.

SCLEROTINIA ROT (Sclerotinia sclerotiorum). This disease caused losses in cabbage and cauliflower crops at Windsor (M.A.). The leaves and curds are often attacked without there being stem rot symptoms. The disease is reported often to develop at points of injury on the leaves or at points where outer leaves have been removed. Sclerotinia rot of cauliflower was also recorded from Leeton (M.I.A.) and Hamilton (C.C.).

DOWNY MILDEW (Peronospora parasitica). There were a number of records from the Sydney Metropolitan Area and also from Breadalbane (S.T.) and Merewether (C.C.). Infection which occurred on cauliflower, cabbage and broccoli, was confined to outer leaves and held in check by dry weather.

RING SPOT (Mycosphaerella brassicicola) caused moderate damage in a cauliflower crop at Tallong (S.T.). No records of the disease on cabbage crops in the Robertson-Moss Vale district where the disease usually causes serious trouble, were received.

CLUB ROOT (Plasmodiophora brassicae). A 50% infection was reported in a cauliflower crop at Windsor (M.A.). The disease was also recorded on turnips at Narrandera (R), on broccoli in the Metropolitan Area, and on chinese cabbage at Caringbah (M.A.), this latter being a first record for New South wales.

PEPPERY LEAF SPOT (Pseudomonas maculicola). Cold moist conditions last July were conducive to moderate development of this disease in cauliflower crops at Leeton (M.I.A.).

WHITE RUST (Cystopus candidus). A heavy infection occurred on radish at Pennant Hills (M.A.).

ALTERNARIA LEAF SPOT (Alternaria brassicae). Two records from the Metropolitan Area.

BLACK RING VIRUS (?). Two specimens of cauliflowers showing symptoms suggestive of the black ring virus disease were received from the Sydney Metropolitan Area.

LEAF PRODUCTION IN CURD (undetermined). A few records on Phenominal Five Months cauliflower in the Sydney Metropolitan Area.

BORON DEFICIENCY. Specimens of turnips received from Bilpin (M.A.) showed internal root discolouration and dying of the growing point, indicative of boron deficiency. The soil in which the plants were growing was acid, suggesting a lack of sufficient boron in the soil. Specimens of cabbage and cauliflower from various parts of the metropolitan area showed varying degrees of hollow stem development. In one case where a grower had previously applied lime to the soil at the rate of three tons per acre to control club root, boron deficiency symptoms were very marked in a subsequent cauliflower crop.

PURPLE DISCOLOURATION OF CURD (undetermined). A case of purple curd development in Russian 2A cauliflower was observed at Summer Hill (M.A.). The exact cause of this curd pigmentation is not known although it may be due to the effect of light. The Russian 2A variety is particularly open headed.

HORMONE WEED SPRAY INJURY. Specimens of cabbage, cauliflower and broccoli which were received from the Sydney Metropolitan Area, showed injury similar to that caused by hormone weedicides. The grower stated that a weedkiller containing 2-4-5 triphenoxyacetic acid had been applied to nearby blackberry plants. Specimens of cabbage from Katoomba (C.T.) and Huskisson (S.C.) also showed evidence of hormone weedicide damage.

FROST INJURY. Several specimens of cauliflower and cabbage were received from coastal and tableland districts which showed flabbiness of leaf veins and raising of the epidermis of the leaf and leaf veins typical of frost injury.

TIP BURN (undetermined). This condition, sometimes associated with frost injury was observed in a crop of Hancocks 5½ months cauliflowers at Hamilton (C.C.). However, the grower stated that no frosts had occurred in the locality during the growing period. The crop was situated within half a mile of the sea.

POTASSIUM DEFICIENCY. Specimens of cabbage showing marginal scorch of the outer leaves together with forward curling of the leaf margins, were received from Hunters Hill (M.A.).

WHIPTAIL (Molybdenum deficiency). Recorded on Phenominal Five Months cauliflower at St. Johns Park (M.A.)

CUCURBITS

POWDERY MILDEW (Erysiphe cichoracearum) was general as usual, being recorded on pumpkin, squash, cucumber and rockmelon. Seed of Powdery Mildew Resistant No. 45 rockmelon was forwarded to Noumea at the request of the Administration and proved highly resistant in that locality.

FUSARIUM FOOTROT (Fusarium solani f. cucurbitae) was recorded on marrow at Richmond (M.A.). Seed of Triamble pumpkin produced at Mount George (N.C.) in 1950 was found to contain about 2% infection. Glasshouse and field tests have confirmed the extreme susceptibility of pumpkin, squash and marrow to the isolate under test. Watermelons and jam melons were practically as susceptible as pumpkin while rockmelon and cucumber varieties varied in their reaction.

ROOT KNOT (Heterodera marioni). Root knot was reported to be quite prevalent on gherkin in the Murrumbidgee Irrigation Areas, and, in the same locality the parasite was found infecting rockmelons on land which had previously been an old peach block. Root knot was also recorded on pumpkin in the Sydney Metropolitan Area.

MOLYBDENUM DEFICIENCY - Following application of ammonium molybdate to White Bush marrows showing 60-70% interveinal chlorosis and high interveinal leaf nitrate content at Merewether (C.C.) a good recovery of treated plants was reported after two weeks. "Yellows" of rockmelons was also recorded from North Rocks (M.A.).

MOSAIC (Virus). Recorded on cucumber from Cabramatta (M.A.) and on cucumber, rockmelon and squash at West Ryde (M.A.).

FAILURE TO SET AND MATURE FRUIT (undetermined). A number of records.

FASCIATION (undetermined). One record on cucumber from Narellan (M.A.).

EGG PLANT

No record.

LETTUCE

SPOTTED WILT (Tomato spotted wilt virus). There were only two records of this disease during the year, both from the Sydney Metropolitan Area.

DROP (Sclerotinia sclerotiorum) caused moderate damage in a crop at Emu Plains (C.T.).

DOWNY MILDEW (Bremia lactucae). One record from Cremorne (M.A.).

SEPTORIA LEAF SPOT (Septoria lactucae). One record from the Sydney Metropolitan Area.

SLIMY ROT (Bacterium sp.). Caused breakdown of about 25% of a crop of Imperial 847 at West Maitland (C.C.). That section of the crop which had not been harvested was overmature at the time of inspection.

ROOT KNOT (Heterodera marioni). Two records from the Sydney Metropolitan Area.

LEAF SCORCH (Potassium deficiency). Specimens showing marginal and interveinal leaf scorching similar to that described for Potassium deficiency were received from Hunters Hill (M.A.).

MOSAIC (Virus). Caused moderate loss in a crop at Wollongong (S.C.).

MUSHROOM

BUBBLES (Mycogone perniciosa) caused moderate damage in a crop at North Ryde (M.A.). Another species of Mycogone was also recorded on mushrooms at Vineyard (M.A.).

BACTERIAL CONTAMINATION OF SPAWN (Bacillus subtilis) was responsible for considerable losses in a commercial producer's spawn stocks at Castle Hill (M.A.). Apparently the contamination was being transferred with the inoculum.

OKRA

VERTICILLIUM WILT (Verticillium sp.) caused moderate damage in a home garden at Canley Vale (M.A.).

ONION

DOWNY MILDEW (Perenospora destructor). Severe outbreaks of this disease occurred in both coastal and inland spring crops. In the Murrumbidgee Irrigation Areas early planted crops were more severely infected than those planted later. In this area, a grower stated that two Bordeaux mixture (15-15-100) sprays saved his crop. All varieties inspected were affected.

WHITE ROT (Sclerotium cepivorum) was in greater evidence than for many years. A crop of 500 bulbs in the Metropolitan Area was destroyed by white rot and moderate damage was reported from a crop at Bathurst (C.T.). The disease was also recorded from Wollongong (S.C.).

BLOAT (Ditylenchus dipsaci). One record from Tenterfield (N.T.). A survey of onion crops in the Maitland Area (C.C.) where severe bloat infection occurred in some crops in 1947 did not reveal a trace of the disease.

BLACK MOULD (Aspergillus niger). Occurred as a storage trouble in the Murrumbidgee Irrigation Areas. Thorough drying out of the bulbs in the field after harvest overcame the disease.

BASAL ROT (Fusarium sp. associated). Specimens received from the Sydney Metropolitan Area.

SOFT ROT (Bacterium sp.) Specimens of bulbs received from Panania (M.A.) showed extensive breakdown by soft rot.

PARSLEY

LEAF SPOT (Septoria petroselini) was quite severe in an autumn crop at Caringbah (M.A.). Severe damage, especially to slightly older leaves was caused by the fungus and the spots detracted from the value of the bunches.

PARSNIP

LEAF SPOT (Cylindrosporium pastinacae) caused severe damage at Hamilton (C.C.), Wollongong (S.C.) and Mt. Wilson (C.T.). The disease was also recorded from the Metropolitan Area.

SKIN DISCOLOURATION (Rhizoctonia solani associated). Specimens of parsnip roots showing this condition were received from Milperra (M.A.).

ROOT KNOT (Heterodera marioni) recorded from Meadowbank (M.A.).

PEA

MYCOSPHAERELLA BLIGHT (M. pinodes) and ASCOCHYTA DISEASES (A. pisi and A. pinodella). Mycosphaerella blight was prevalent as usual. It was recorded on both spring and autumn crops in the Murrumbidgee Irrigation Areas. Ascochyta footrot (A. pinodella) was more prevalent than usual in plantings in the Metropolitan Area and was also recorded from Taree (C.C.) and Dubbo (C.W.S.). Ascochyta leaf and pod spot (A. pisi) was recorded from Taree (C.C.) and Henty (R.).

BACTERIAL BLIGHT (Pseudomonas pisi) was recorded from Taree (C.C.) and Dubbo (C.W.S.).

DOWNY MILDEW (Perenospora viciae). This disease was quite prevalent on all varieties in the spring on the M.I.A. The varieties classified under the rather indefinite name of "Peru 1, 2 and 3" were very susceptible to the disease. Previously, opinion existed that these varieties possessed some resistance to downy mildew. The disease was also recorded from Dubbo (C.W.S.).

SEPTORIA BLOTCH (Septoria pisi) recorded from Bowral (S.C.) and Orange (C.T.)

POWDERY MILDEW (Erysiphe polygoni). Observed in autumn crops on the M.I.A.

FUSARIUM WILT (Fusarium oxysporum f. pisi race 1) Caused some loss in seedlings on the M.I.A. in mid summer.

FOOTROT (Rhizoctonia solani and Pythium sp.) caused severe damage in a crop at Griffith (M.I.A.). Rhizoctonia footrot was also recorded from West Kempsey (N.C.).

ROOT KNOT (Heterodera marioni) recorded from the M.I.A.

PIMPLE POD (? virus). Samples of vines and pods (var. Telephone) showing symptoms similar to those caused by the pimple pod virus were received from Roseville (M.A.).

PEPPER (Capsicum)

MOTTLING AND RING SPOTTING (? virus). One specimen received from Killara (M.A.).

POTATO

LATE BLIGHT (Phytophthora infestans). This disease completely killed the tops of an early spring planting of the variety Factor at Merewether (C.C.). A later planting nearby was only slightly affected. A slight infection was also noted in Factor potatoes at Lindfield (M.A.). However, apart from these records, there were no other reports of late blight in coastal spring crops or later planted northern and southern tableland crops until rains in March-April, when reports of infections on the tablelands and specimens from coastal areas were received.

LEAF ROLL (virus). On the northern tablelands no crops submitted for certification were rejected because of excess leaf roll (greater than 1% at the second inspection). Rejection in this area in 1950/51 was 0.4% of the crops submitted. 9.9% of the acreage submitted on the central tablelands was rejected (12.9% in 1950/51) and 1.5% on the southern tablelands (1.9% in 1950/51). The Potato Seed Certification Scheme has been responsible for a marked decrease in leaf roll incidence where certified seed has been planted and where the grower has rogued efficiently.

In unrogued crops not submitted for certification in the Guyra-Brockley area (N.T.) up to 5% leaf roll was present. In crops at Grafton (N.C.) grown from certified seed about 2% leaf roll infection was noted, whereas a crop grown from uncertified Sebago seed showed 20% leaf roll and a crop of Mainguy from uncertified seed showed 50% infection.

A number of records were made from the Sydney Metropolitan Area during the year.

COMMON SCAB (Streptomyces scabies). The hot dry season was extremely favourable for development of this disease and records were made from practically every potato growing area in the State. Very severe infections occurred in the Orange district (C.T.) where, in the Potato Scab Resistance Trial, the susceptible control-Sebago showed about a 70% infection severity. High resistance was shown in this trial by a number of imported varieties and some locally bred seedlings were also promising. In the northern tableland crops overall infection was relatively light but in the southern tablelands quite severe infections were reported at the end of the season. None of the New South Wales commercial varieties are resistant to scab.

POWDERY MILDEW (Oidium sp.). This disease caused marked mildewing of the foliage and brown stem spotting in a number of crops of the varieties Sequoia and Monak in the Guyra district (N.T.). The damage was occurring during a period of misty weather following relatively dry conditions. Specimens of Sequoia and Sebago plants received from Crookwell (S.T.) also showed similar leaf mildewing and stem spotting. Although this disease was recorded in 1933, it has been relatively unimportant to date.

BACTERIAL WILT and BROWN ROT (Bacterium solanacearum). Many records of this disease were made during the year in the Sydney Metropolitan Area. Among varieties attacked were Katahdin and Sebago for which resistance has been claimed by overseas workers. Hot conditions were conducive to attacks by this pathogen which to date has only been recorded on the coastal areas of New South Wales.

BROWN FLECK (non parasitic). A number of records, many from the Sydney Metropolitan Area. Reports from potato inspectors indicate that Sebago was affected to a greater degree than other varieties. In experimental plantings at Glen Innes (N.T.), the variety Stormont Star was severely affected.

EARLY BLIGHT (Alternaria solani). A few records of infection but this disease did not contribute significantly to yield reduction.

PURPLE TOP WILT (Tomato big bud virus). Infection of potatoes by this virus was recorded for the first time in New South Wales in crops inspected in the Grafton-Ulmarra-Maclean area (N.C.) in October, 1951. The symptoms on affected plants were practically identical with those described by Leach and Bishop (West Virginia A.E.S. Bul. 326) as purple top wilt of potatoes caused by the Aster Yellows virus. 2% overall infection had developed in Sebago and Sequoia which had been sown in June-July. Highest individual infection was about 5% in one crop of Sebago. Equal infection had developed in crops grown from both certified and uncertified seed of New South Wales and interstate origin.

In November 1951, crops of Sebago, Sequoia and Exton at Wellington (C.W.S.) were inspected and up to 50% purple top wilt infection was recorded in Sebago and 25% in Sequoia. These crops had been sown in August-September and the symptoms of purple top wilt were stated by the growers to have appeared in mid November. In this district losses would have been heavy as many of the tubers which had been formed at the time of inspection were either small and misshapen or very flabby. The disease was also reported from Dubbo (C.W.S.) during the spring.

Purple top wilt appeared generally in the August-September sown crop at Pitt Town (M.A.) about mid December. In one crop of Sebago, however, which had been sown in late July, the grower stated that symptoms first appeared in September and, by December, about 60% of the crop was showing all stages of infection. Many of the plants in this particular crop produced only one or two flabby tubers. Infection in the remainder of the crops in the Pitt Town area varied from 5-60% averaging about 20%. However, yield reductions would not have been 20% as, mostly, tube development was well under way at the time of infection.

On the northern tablelands (seed planted October-November) 1-2% purple top wilt infection was evident by mid January in all varieties inspected - Sebago, Sequoia, Monak, Adina and Early Manhattan. By mid February there had been little increase in the incidence in most crops in this area with exception of a crop of Sequoia at Black Mountain, in which adults of the big bud vector (Orosius argentatus) were trapped in mid January and in which about 15% infection had developed at the second inspection. Crops in this area were further inspected in mid March and an increase of about 5% incidence of purple top wilt had taken place in those crops which had not been rogued, all gradations in symptom expression of the disease being present. Purple top wilt was also reported from Ebor (N.T.) at this time.

In the central tablelands (seed planted December), a trace of purple top wilt had developed in most of the crops, irrespective of variety, by mid February. Infection increased slightly by mid March but did not reach serious proportions.

In the southern tablelands (seed planted December) little purple top wilt was observed by late February but about 5% overall disease incidence was present by April, when, once again all stages of infection were noted. At this stage, the variety Sebago was showing the highest infection.

Although the big bud vector was trapped only once during the season, it appears from the general pattern of infection, particularly in the northern tablelands, that a vector had been responsible for outbreaks of purple top wilt and probably a number of generations were involved. The season had been favourable for the development and migration of leaf hoppers. The results of a small scale trial planted with tubers obtained from purple top wilt affected plants indicated that this phase of infection would not be responsible per se for outbreaks in the field.

A trace amount of purple top wilt has undoubtedly been present in potato crops in New South Wales for many years but, because of the similarity of symptoms on the above ground parts of the plant, had been accepted as Rhizoctonia disease. This is the first year that any serious losses have been recorded in New South Wales potato crops as a result of infection by this virus.

LEAF ROLLING (Physiological). Practically 100% of the crops of the variety Adina growing under dry conditions in the Central Tablelands showed a marked rolling of the lower leaves. The phloroglucinol test for virus leaf roll on affected plants gave negative results. The lower leaf rolling disappeared following rain later in the season, indicating that this effect was brought about by dry growing conditions. It is of interest that Katahdin, one of the parents of Adina, shows similar symptoms under dry conditions.

RHIZOCTONIA DISEASE (Rhizoctonia solani). Practically non existent in any of the potato growing areas. The season was extremely unfavourable for development of this disease from which damage can only be expected when wet conditions follow planting of undipped infected seed or planting in infested soil. The establishment of purple top wilt as a definite disease of New South Wales potato crops has eliminated many conflicting points of so called "Rhizoctonia" which would not now appear to have been responsible for much of the discolouration of tops, aerial tuber and axial shoot formation, which had been previously attributed to it.

SPOTTED WILT (Tomato spotted wilt virus). Greater than 5% spotted wilt infection at the second inspection was responsible for the rejection of two crops (vars. Factor and Sequoia) at Millthorpe (C.T.). Apart from this record, damage by the spotted wilt virus was almost negligible in potato crops during the past year. Slight infection was observed in crops of Monak and Saranac at Guyra (N.T.) and a crop of Sebago at Crookwell (C.T.). Reports of slight infection were also received from Orange (C.T.) and Taree (C.C.) and also the Sydney Metropolitan Area.

FUSARIUM WILT (Fusarium oxysporum f. tuberosi) was present to a slight extent in central tableland crops, mostly on those crops which were planted on land which had been under potatoes once during the previous five years. When attacked, the Sequoia variety exhibited very marked symptoms. Slight infections were also reported from the southern tablelands. The generally low incidence of this disease may be attributed to the fact that most growers plant only after 6-8 years continuous pasture.

FUSARIUM DRY ROTS (Fusarium spp.) A number of records from the Metropolitan Area and one from Oberon (C.T.).

SALT INJURY (non parasitic). About 20% injury was observed in some spring crops on the lower Clarence River area (N.C.). Owing to prevailing dry conditions growers had resorted to irrigation with river water in an area where tidal rises occurred and the water contained sufficient salt to cause injury.

BLACKLEG (Erwinia atroseptica). Practically non existent this year.

FROST INJURY. Following frosts in February at Oberon (C.T.) two crops of Sequoia were observed where more than half the tops were killed. Slight frost damage also occurred at Orange (C.T.).

EELWORM (Heterodera marioni). Several records.

SOFT ROTS - (Bacterium spp.). A number of tubers showing bacterial breakdown were received for examination.

POTATO VIRUS Y. One record of current season infection from Hunter's Hill (M.A.).

WITCHES' BROOM (virus). One record from the Sydney Metropolitan Area.

HOLLOW HEART (non parasitic). The variety Sequoia, as usual, was very prone to this disease.

BLACKHEART (non parasitic). One record from Bilpin (M.A.).

RHUBARB

ROOT ROT (Rhizoctonia solani). One record of this disease from Blackalls (C.C.).

CROWN GALL (Agrobacterium tumefaciens) was reported during the season from the Sydney Metropolitan Area. This is the first record of the disease on rhubarb in New South Wales.

PHYLLOSTICTA LEAF SPOT (Phyllosticta straminella). One record of this disease from Bega (S.C.).

RUST (Puccinia rehi-undulati) caused severe damage to plants in the Sydney Metropolitan Area, some being almost killed.

DOWNY MILDEW (Peronospora jaapiana). One record from the Sydney Metropolitan Area.

NITROGEN DEFICIENCY was reported from several places in the Sydney Metropolitan Area during the year.

SWEET POTATO

SCURF (Monilochaetes infuscans) was recorded from Grafton (N.C.) as causing damage to tubers of several varieties. It was also reported from Kincumber (C.C.).

LEAF SPOT AND VINE DIE-BACK (Stemphylium botryosum associated) was reported from Lismore (N.C.) in the autumn of 1952. Severe damage was caused to late planted crops. The disease is very similar to that caused in South Africa by Pleospora herbarum (conidial stage Stemphylium botryosum) and if the pathogenicity of the N.S.W. isolates is proved, it will be the first record of the disease in N.S.W.

SUNSCALD on the leaves was reported from Lane Cove (M.A.).

TOMATO

SPOTTED WILT (Tomato spotted wilt virus). No reports of spotted wilt were received from the Metropolitan Area during the early spring and the first infected plant observed was at Lindfield (M.A.) on 6th November. Infection was light but widespread at the end of November and continued through until April without displaying any obvious peak. Incidence of the disease was higher during November, December and January than during the 1949/50 and 1950/51 seasons but was lower than that of 1948/49 and preceding seasons. The tendency for infection to continue into the autumn, previously noted, was more pronounced than usual. On the north coast in areas where, previously, losses have seldom been in excess of a few plants per thousand, individual growers suffered losses of up to 10%. In the Murrumbidgee Irrigation Areas the disease reappeared in serious degree, 10% infection of individual crops was commonly encountered while losses as high as 20% occurred in some blocks. At Gosford (C.C.) spotted wilt was unimportant during spring months but 14% of a crop of 700 plants was lost at the Narara Viticultural Nursery during February. The disease was present but of minor importance throughout a seed crop grown at Coonabarabran (N.W.P.).

EARLY BLIGHT (Alternaria solani) as usual early blight was present during late summer. Severe damage was caused in crowded seedbeds in the Gosford (C.C.) district in January. There were no reports of severe defoliation or fruit injury in field crops.

FUSARIUM WILT (Fusarium oxysporum f. lycopersici). The breakdown of the field resistance of the variety Grosse Lisse was observed in a higher percentage of crops this year and in soil which was not waterlogged at any stage. In the Metropolitan Area losses in this variety reached 20% at Leppington, 15% at Austral, 10% at Lower Portland and 5% at Wetherill Park. Several reports of losses in miscellaneous varieties were received from home gardeners throughout the Metropolitan Area. Rouge de Marmande, Red Cloud and

Break o'Day were affected in the Gosford (C.C.) area in some cases on "new" ground. In the Murrumbidgee Irrigation Areas where effective crop rotation is sometimes difficult to adopt as high as 100 % infection was observed in Tatura Dwarf Globe which is apparently more susceptible than Tatinter in the field. Many other crops were severely infected, though at a lower rate. The disease was adequately controlled in glass-houses at Mona Vale and Warriewood (M.A.) where soil fumigation with chloropicrin was practised.

BACTERIAL SPOT (Xanthomonas vesicatoria). This disease caused little damage though records were made from most sections of the State. Close inspection failed to reveal it in any variety being grown for seed purposes at Coonabarabran (N.W.P.) nor was the disease reported from the Murrumbidgee Irrigation Areas. Trace to light leaf infection, but no fruit marking, was noted in 10% of a crop of Rouge de Marmande at Merewether Newcastle (C.C.).

BACTERIAL CANKER (Corynebacterium michiganense) was of no importance.

LEAF MOULD (Cladosporium fulvum). Little loss was experienced as the result of leaf mould of outdoor crops, infection being in trace amount only in isolated crops. The disease remained the major cause of trouble in glasshouse crops.

ROOT KNOT (Heterodera marioni) eelworm damage occurred in numerous localities, home gardens in sandy soils being most affected. There were no records of major damage under commercial conditions. Most glasshouse crops on sandy soil were protected by soil fumigation with D.D.

SEPTORIA LEAF SPOT (Septoria lycopersici). Incidence of leaf spot was light throughout the State. Two records were made in the Murrumbidgee Irrigation Areas during October and trace infection was observed at Newcastle (C.C.) during the same month.

BLOSSOM DROP (non-parasitic). Blossom drop occurred in limited amount during cooler weather in the Metropolitan Area in April and May.

MAGNESIUM DEFICIENCY. No records.

VERTICILLIUM WILT (Verticillium dahliae). A few plants were affected in glasshouses in the Warriewood-Mona Vale (M.A.) area. At Prospect (M.A.) about 2 per cent of Rouge de Marmande and Grosse Lisse, in a common crop, exhibited symptoms suggestive of Verticillium wilt in December. While several attempts to isolate this fungus were unsuccessful Verticillium was isolated in a minority of cases.

FRUIT ROTS (various fungi). Other than Colletotrichum phomoides which was prevalent in late hanging fruit in autumn, no fruit rots were recorded.

RHIZOCTONIA ROOT ROT (Rhizoctonia solani). Was reported once from seedbeds at Tenterfield (N.T.) and once from the Metropolitan Area.

BLOSSOM END ROT (non-parasitic) was prevalent throughout the State including the Murrumbidgee Irrigation Areas. More records than for some years were made in the Metropolitan Area during December to March.

MOSAIC (Tobacco mosaic virus). Mosaic symptoms were present in all glasshouse crops. In some cases severe mottling and some growth stunting was apparent in plants in which the second hand of fruit was setting but the plants later recovered to yield normal crops. Mosaic was also noted causing leaflet distortion, rather than mottling, in several outdoor crops.

BIG BUD (Tomato big bud virus). In inland districts the incidence of big bud ranged from a trace to 4 or 5 per cent. Distribution in the Murrumbidgee Irrigation Areas was uniform throughout the region, most blocks sustaining 3 to 5 per cent infection. 5 of 10 plants were affected at Guyra (N.T.) in the immediate vicinity of a crop of potatoes which exhibited approximately 7% infection with purple top wilt.

SHATTER (virus). Occasional specimens were noted in the Murrumbidgee Irrigation Areas. No other records.

LATE BLIGHT (Phytophthora infestans). No records.

COLLAR ROT (Phytophthora cryptogea). No records.

BACTERIAL SPECK (Bacterium tomato). No infection was observed in the propagation glasshouse at Leeton (M.I.A.) this year. No other records.

PUFFY FRUIT (non-parasitic). In the Metropolitan Area one crop of Grosse Lisse yielded fruit exhibiting puffiness during March.

STREAK (Tomato streak virus). Approximately ten glasshouse crops were destroyed by single streak at Warriewood (M.A.) in July. Occasional outdoor crops in the western section of the Metropolitan Area were affected in varying degree.

MOLYBDENUM DEFICIENCY - Symptoms of molybdenum deficiency were observed in a number of lowland tomato crops in the Gosford (C.C.) district. One case was also recorded at Mangrove Mountain (C.C.). Similar deficiency was also present in the Coffs Harbour (N.C.) area.

"HORMONE" INJURY. The public is not yet fully conscious of the dangers of some of the weed killing "hormones" to growing tomato crops, and numerous reports of damage to crops due to accidental contamination with these substances were received.

UNDETERMINED VIRUS. A virus or virus complex was observed affecting tomatoes in many localities throughout coastal areas. Symptoms first appeared on older leaves which died off prematurely in regular sequence from the bottom upwards. Other than death, which often first occurred in areas in the vicinity of the subterminal region of the main vein of the leaflets, there was mostly no other symptom. Occasionally dark rings and/or oak leaf markings appeared in moribund leaflets especially on the shaded side of the plant. In some cases ripened fruit exhibited yellow circular areas closely resembling those caused by the spotted wilt virus and, in view of the fact that the observations were made on field crops, the fruit may, in fact, have been affected by the spotted wilt virus. It has been possible to infect a wide range of test plants including representatives of the Solanaceae, Cucurbitaceae, Leguminaceae and Compositae by mechanical inoculation though in many cases symptoms of the disease are completely marked.

Apparently identical ring and oak leaf markings have been observed on a wide range of hosts in the field.

MISCELLANEOUS PLANTS

BUSHY STARWORT (Aster subulatus)

POWDERY MILDEW (Oidium sp.) was reported for the first time on this host in N.S.W. from Kenthurst (M.A.).

COACHWOOD (Ceratopetalum apetalum)

SOOTY BLOTCH (Meliola sp) was reported from Mt. Wilson (C.T.).

DOCK (Rumex spp.)

LEAFSPOT (Ovularia obliqua) was very prevalent on weeds in M.I.A. orchards during spring.

EUCALYPTUS SPP.

SOIL ALKALINITY. At Narrandera Forestry Nursery (R) it was found that loss of Eucalyptus seedlings was attributable to alkaline soil condition. At a soil pH of 8.0 seedlings were killed, but in soil of pH 6.0 growth was normal.

INK WEED (Phytolacca octandra)

ROOT KNOT (Heterodera marioni) was reported from Caringbah (M.A.).

LONG-SPINED THORN APPLE (Datura ferox)

POWDERY MILDEW (Oidium sp.) was reported for the first time in N.S.W. on this host from Murrurundi (C.C.). Adjoining plants of D. stramonium were not affected.

MALLOW (Malva parviflora)

RUST (Puccinia malvaccarum) was abundant on weed growth in M.I.A. orchards in autumn.

NETTLE (Urtica urens)

LEAF SPOT (Septoria sp.) Very severe infection was noted at Temora Experiment Farm (S.W.S.) in late spring 1951. Most affected plants were almost killed by the disease.

NIGHTSHADE (Solanum opacum)

GREENING (Big bud virus) was reported from Temora Experiment Farm (S.W.S.).

RED FLOWERED MALLOW (Modiola Caroliniava)

LEAF SPOT (Cercospora althaeina) occurred on weeds at Leeton (M.I.A.).

RUSH (Juncus sp.)

RUST (Puccinia juncophila) was noted from Temora Experiment Farm (S.W.S.).

SEDGE (Cyperus difformis)

RUST (Puccinia sp.) was recorded for the first time on this host in N.S.W. from Leeton (M.I.A.).

WATTLE (Acacia spp.)

RUST (Uromycladium notabile) was recorded from Oberon (C.T) on A. dealbata and from Mt. Wilson (C.T.) causing severe gall formation on A. elata.

WILD TURNIP (Brassica tournefortii)

POWDERY MILDEW (Erysiphe polygoni) was recorded for the first time in N.S.W. on this host from Coomealla (W.D.), where it was very prevalent on weeds in orchards.

-----oOo-----